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With a 100% slip-proof Seal-O-San finish on the gym floor, players whip the ball through the basket with a great deal more confidence and skill.

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Seal-O-San's specially prepared ingredients provide positive floor traction for quick starts and stops. Thus, a player can dribble the full length of the floor, stop suddenly, pivot sharply, and shoot with the assurance that he will not slip, skid, or fall. With sure-footing assured, with floor injuries eliminated, development of a sure eye is made easier.

Regardless of whether your players are shooting, pivoting, or passing, you'll find that non-slippery Seal-O-San makes a world of difference in execution.

The marked improvement in footwork and teamwork will convince you that you can't afford to coach without a Seal-O-San floor.

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THERE IS ONLY ONE PROVEN IDEAL GYMNASIUM FLOOR FINISH . . . ITS NAME IS SEAL-O-SAN

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R. B.

Time Out!

Well-conditioned bodies will usually react well to a few minutes rest. But, unless the athlete maintains a state of complete physical fitness the fatigue curve may take a downward course toward the end of the game and "time out" becomes more frequent. Well-balanced, nutritionally correct meals are an important part of conditioning. A number of teams are finding that COCOMALT, added to milk, means additional vitamins, minerals and energy which help to build good red blood and reserve force. COCOMALT contains vitamins A, B₁ and D . . . also minerals, calcium, phosphorus and iron . . . all necessary for young growing bodies.

Supervised medical studies have proven that COCOMALT does aid in helping to build red blood and reserve force. Both are invaluable in competitive sports. Serve it at the training table and watch the team enjoy this delicious vitamin-mineral enriched food drink.

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You can try Tilite right away. It costs you no more than a penny postcard, if you send for a free sample with the coupon below.

Use your sample of Tilite on the surfaces of your pool which are normally hardest to clean. See for yourself how quickly Tilite works!

Tilite is ideal for fast, labor-saving cleaning of mosaic, ceramic or vitrified tile. Its double chemical-mechanical cleaning action swiftly removes both imbedded

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Tilite is safe to use. And it contains no soap to make wet surfaces dangerously slippery. You'll find Tilite economical, too, because a little does a lot of cleaning. Comes in 50, 150 and 300 lb. drums.

For pool sanitation, used on the wall after cleaning with Tilite and to chlorinate the water, we recommend Perchloron*. Containing more than 70% available chlorine, this stable and concentrated powder dissolves readily and enables you to sanitize your pool at low cost. Just now, however, so much Perchloron is being used for defense purposes that deliveries of some orders are being delayed. If you have to wait for your supply of Perchloron, please be patient.

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SCHOLASTIC COACH

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Advisory Editor: JACK LIPPETT
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The RCA Victor School Sound System is ideal for *your* needs. It enables you to have quick, accurate 2-way communication with any room or group of rooms—or can be connected from your school to the athletic field or other buildings. Saves time, facilitates training.

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MAKES ATHLETIC EVENTS MORE INTERESTING!

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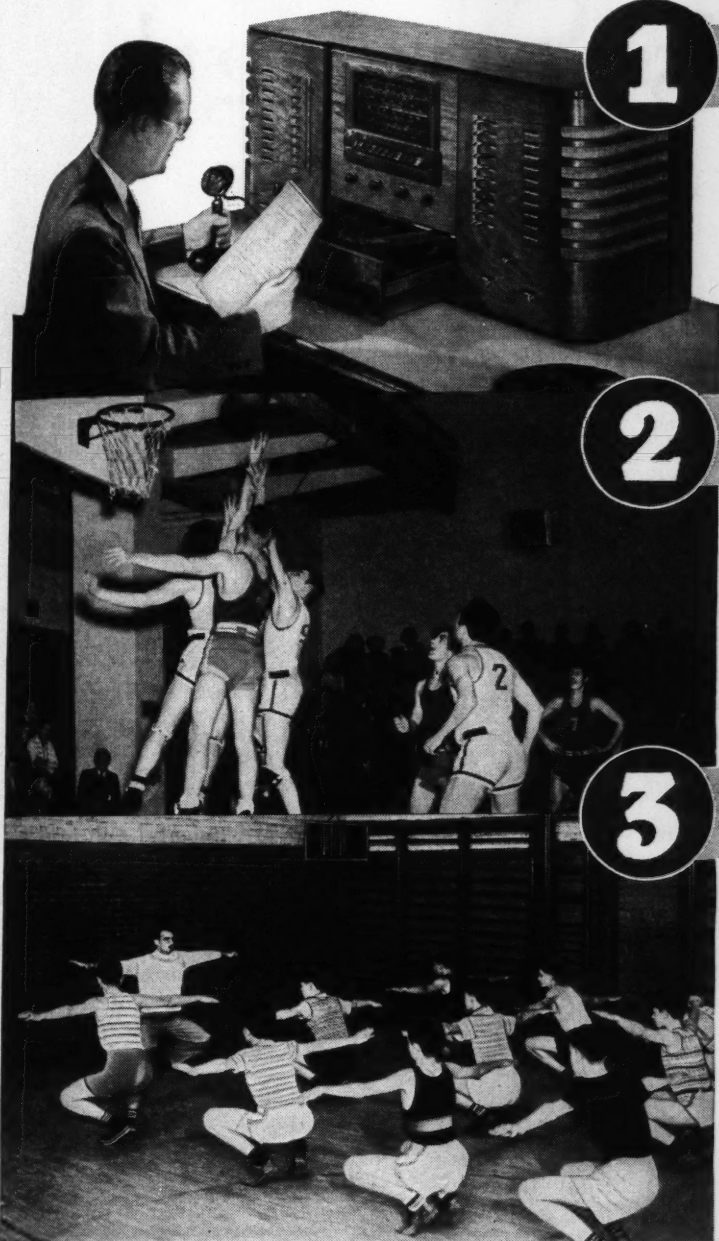
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PROVIDES MUSIC FOR RHYTHM!

Record or radio music can be played in the gymnasium, on the playing field or elsewhere over the RCA Victor School Sound System, to give your students rhythmic music during gymnasium exercise, or while practicing football, track or other events. For complete information, mail the coupon below.

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The Secret of America's Strength

By L. B. Icely, *President*
Wilson Sporting Goods Co.

WHEN you suddenly decide you will pack wife and family into the car and take a weekend run down to that winter resort for a few days of sport and relaxation, you find plenty of company there and sometimes you even find "no room at the inn" at all. Then it is that you become very much aware of the truth of the re-



mark you hear everywhere these days—"America lives out-of-doors."

America is active. America is out-doors . . . and as a result, America is confident in a world that has shaken the confidence of most people. America is strong in a world where country after country has gone down under the conqueror's ruthless heel.

Certainly, we have our problems—but have you heard real *fear* expressed by many people? Have you heard anything but confidence expressed about the eventual outcome of this war as far as America is concerned?

That confidence is the mass conviction of a nation that has always been a strong athletic nation.

Inborn love of athletics and of strenuous competitive games has kept American youth athletic in mind and body. That is primarily the reason our navy is ready and our

army and air force is rapidly growing into a formidable fighting machine. That is primarily the reason we may be sure that we shall not fail in shops and factories to live up to the proud task that has been assigned to us in Democracy's march to victory.

Our enormous program for the building of needed war equipment will be paralleled by the building up to still higher standards the physical strength of the people. With stronger bodies will come still greater confidence, still stronger morale. America is out to win.

I make this statement with the confidence born of many years of ob-



servation at one of the liveliest "nerve centers" of American sports life.

As president of Wilson Sporting Goods Co., I have watched the rapid growth of American interest in all fields of sport and with my associates have had, I believe I may say, no small part in the encouragement of modern implements of sports and exercise. Better equipment, I think no one will deny, has been one of the most important factors in increasing the attractiveness of play and exercise among America's millions.

The better material and better design that goes into today's golf clubs and balls, tennis rackets and balls,

football, basketball, baseball, softball, badminton, squash, handball and gym equipment, provides an incentive greater than has ever been known before, for an active, health-



ful life. Such equipment therefore serves a purpose as vital to a strong, confident, enduring *people* as the materials now pouring into our formidable output of guns, shells, ships, motor vehicles, tanks and planes.

It is my belief and the belief of every specialist in this field with whom I have ever talked, that everything that encourages national consciousness of health and the benefits of physical exercise is important to national welfare in time of peace, and vital to the country's success in time of war.

Coaches Built America's First Line of Defense!

Long before the present great War program assumed proportions that make it the most outstanding event in our nation's history, the coaches of school and college teams were building its main foundation—the vigorous health and stamina of American youth. Today our coaches are more than ever a first line of defense and a vital element in producing the men of steel and iron who will bring Victory to America and her Allies and peace to the world.

L. B. I.

BASKETBALL'S celebrating a birthday this season. As you probably know, the old peach basket game is 50 years old. It was in 1891 that Jimmy Naismith, an idealistic physical instructor, hammered a basket against each end of the Springfield, Mass., YMCA gym, produced a soccer ball and ordered the boys to fire away.

The thing was done in an effort to find some sort of winter employment for a class of incorrigibles. It worked. And now we have a game that 10,000,000 play and another 90,000,000 watch every year.

Naturally the world owes Dr. Naismith a debt it can never pay. But a nice gesture is being made this season. Thousands of basketball teams are dedicating one of their games to the Golden Jubilee. The proceeds are to be used to erect a hall of fame in Springfield.

The Temple of Basketball will be more than a memorial to the man who invented the game. It will be a permanent monument to the great players as well. Deposited in the archives will be all the available memorabilia on basketball and the names of the great figures of the past and the present.

This is something basketball has long needed. It's the only way some of the immortals will be remembered. For some reason, basketball players rarely get to be very well known. Not like baseball or even football players. At the end of a football season, there will be 10 to 20 players everybody knows about.

At the end of any basketball season, there aren't more than one or two. For proof, there's Hank Luisetti. Although he played his last college game in 1937, he's still the only universally known basketball player.

If you haven't as yet set aside one of your games as a Golden Ball contest, do it today. The details are simple. Send a card to the Naismith Memorial Committee at Springfield, Mass., designating the date of your game, the place and the opponent.

Every team participating in the Jubilee will be honored by having its picture, together with a record of

the game, placed in the archives of the hall of fame.

New friends

WHO knows, maybe our next successful venture in the Pacific will be executed from a T formation with a bomber in motion—as outlined in *Scholastic Coach*.



Here's the way the first game of basketball ever played looked to a Springfield, Mass., YMCA student in 1891. After goals, the gent on the ladder removed the ball from the peach-basket hoop and tossed it back onto the playing floor.

Coaching friends of ours now serving Uncle Sam have been sending us so many nice reports about the way their copies of *Scholastic Coach* have been seized upon in their camps that, beginning with this issue, *Scholastic Coach* will be sent regularly to the athletic officer of every camp and post in every branch of the service!

Old friends

WHAT, ho! the professional tennis troupers are with us again; featuring, as usual, something old, something new, something borrowed, and something blue.

The "old," of course, is some of the faces—Don Budge and Fred Perry. The "new" is the acquisition of Bobby Riggs and Frank Kovacs. Usually, it's tough enough to wheedle one star away from the amateurs. The enticement of two, especially the No. 1 and No. 2 men, is a *coup de maitre* for the pros.

The "something borrowed" is a matter psychophysical—the will to win. While this has always been a conditioned

reflex with amateurs, the same could not always be said of the pros. Until Don Budge and Alice Marble came along, there were cynics who insisted that the pros did not always go "all out" to win, as they were guaranteed a flat sum—win or lose.

Well, that's one charge no one will level at this troupe. For, under their revolutionary payoff system, the lion's share of the spoils will go to the victors. Each player will share in a player's pool that is guaranteed at \$100,000. The player with the best record at the end of the tour will collect 36 per cent; the next, 26 per cent; third man, 21 per cent; and low man, 15 per cent.

The lone "blue" note was sounded by Fred Perry. In returning a shot against Bobby Riggs on opening night, he flew through the air and landed on his shoulder. To the accompaniment of much sympathetic clucking, he was carried out on a stretcher. By this time, however, he should be back in the lineup battling for that dear old 36 per cent of the hundred grand.

YOU'VE probably noticed the "routing slip" on the front cover. We hope it will prove helpful in passing along the magazine to other members of the physical education and coaching department, as well as to any interested teachers.

Upon receiving the magazine, jot down the names of the people it will go to. Then relay it along, asking each person to check his name after reading it. In this way, you can make sure the magazine is going to a specific person and that it will wind up in a safe place.



Basketball boundaries in the gymnasium at Peru High (Indiana) are clearly outlined by using both light and dark finished Hard Maple: Henry C. Wolf, Logansport, Ind., is the architect.

"We Use Maple Flooring in All Gymnasiums Because It Is Nearly Indestructible"

SAYS HENRY C. WOLF, ARCHITECT

"There is no material on the market today," adds Mr. Wolf, "that equals Northern Hard Maple in wearing qualities, beauty of finish, nor as resilient when installed over deadening felt and sub-floor.

"The Coaches and basketball players prefer this type of flooring above all others."

Indiana, where basketball is king, knows "gym" floors well and, like all other states, makes Hard Maple a preferred gymnasium flooring.

Hard Maple combines everything needed to make both school-boy and taxpayer happy. It is a "fast" floor for athletics

—smooth but non-slippery—warm, dry, and resilient—and so tough-fibred and tight-grained, it seems to wear forever. Correctly finished, mere brushing cleans it—maintenance is simple and inexpensive.

This year modernize your Gym floor with Northern Hard Maple.

Before you build or remodel, investigate **MFMA** Northern Hard Maple, in strips or blocks. Ask your architect. See our catalog data in Sweet's, Sec. 11/82.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1798 McCormick Building, Chicago, Illinois

Write for Literature on Gymnasium Maple Floor Construction—Strips or Blocks.

Floor with **MFMA** Maple

REG. U.S. PAT. OFF.

(N O R T H E R N H A R D)

IT'S MODERN DESIGN IN THE LEAD HIGH GYM

By R. V. Hunkins

R. V. Hunkins, superintendent of Lead, S. D., Public Schools "blue prints" the modern physical education plant of the new junior-senior high school.

ANY WAY you look at the Lead, S. D., Junior-Senior High School gymnasium, it is a thoroughly satisfactory structure. Blended happily with modern design is all-year round utility in the shape of a regulation basketball court, a 100-yard track and the latest equipment.

As you can see in the accompanying pictures, Lead really has two gyms: one for boys and the other for girls. The double gym setup was decided after much deliberation. The feasibility of one large gym with a movable partition in the center was seriously weighed. But we decided against it.

With independent facilities, we thought, the boys' and girls' programs could be discharged with absolutely no interference or overlapping. Fundamentally, the arrangement made for sounder-shaped play areas, as two-unit gyms are difficult to design without sacrificing practicability.

With an isolated unit, our basketball team may practice any time and as long as it chooses on a full-sized floor. There is no waiting for a girls' activity to finish and for the partition to be rolled back.

Built-in bleachers

While both sides of the boys' gym are lined with built-in bleachers, the girls' gym contains but a few rows of seats along one side. The sole purpose of these seats is to accommodate classes for lectures and to seat occasional visitors. The big functions are all held on the boys' side.

The boys' gym is 50 by 94 feet and 25 feet high. Glass brick windows, cinder-block side walls and glazed tile wainscotting give the structure a trim appearance. The ceilings are of celotex. Hard plaster, we found, absorbs sound poorly. Probably the best type of ceiling from the standpoint of acoustics, is the new perforated acousto-tile.

Seventeen feet above the floor is a six-foot wide, well-banked track with cork tread. We built this addition knowing full well that balcony tracks went out of style years ago. The move was necessitated by local climatic conditions. Stormy spring

All-year round utility is engendered in a regulation basketball court, a 100-yard track and full equipment



SHOWER STALLS at Lead High feature eight individual sprays (thermostatically controlled), built-in urinals, footbath trays, and slip-proof germ-treated tile floors.

weather was playing hob with our outdoor track program. The only solution to the conditioning problem was an indoor track. Nowadays, whenever rain disrupts outdoor practice, the boys take up indoors.

The track comfortably accommodates 25 to 30 boys. Its size makes it very useful for gym classes. A part of each period is devoted to a warm-up whirl around the boards. Once in a while a track meet is staged.

A complete turn covers slightly over 100 yards. The corners are so well banked that there is no strain on the ankles. The track also comes in handy for overflow basketball crowds. Some spectators actually prefer this balcony site because of the excellent visibility it affords.

For basketball, the gym can't be beat. Two Porter fan-shaped backboards adorn the walls at each end of the gym. These are permanently anchored. Under each is a large, shock-absorbing mat to protect the players on layup shots.

Along the cross-courts, flush against the ceiling, are four swing-down banks which may be used for practice or gym games. Each side of the floor boasts a Medart electric scoreboard, both of which are operated by a single control. This is a spectator convenience more schools

ought to adopt. One board seldom reaches the entire audience; two boards do the job thoroughly.

The heating of the gym is supplied by thermostatically-controlled steam-heating units close to the ceilings with blowers which throw the heat out and around the room. Excellent illumination is furnished by twenty 750-watt lamps in recessed housings. The floors of the gym are of smooth, durable maple.

The locker and shower rooms, like the gym, combine utility and attractiveness. Located under the gym, they are a full story high with plenty of air space above the lockers and showers.

There are two locker rooms for the boys. One is used during the day by gym classes. It consists of 50 full-length lockers, a basket room with trucks and an adjoining shower room. The boys' gym clothes are kept in baskets on the trucks.

As the class comes down, its truck is wheeled out into the middle of the room. Street clothes are put into the full-length lockers. Thus, normally, the big lockers are empty. This enables us to assign the room to visiting basketball teams. When they're using the room, the gym suits are locked up in the adjoining basket room.



MODERN DESIGN is graphically exemplified in Lead, S. D., Junior-Senior High School's beautifully laid out, completely equipped gymnasiums. Above is the boy's gym with its fan-shaped backboard, electric scoreboards, maple floor, and built-in bleachers. The girls' gym (below), while completely equipped, has bleachers along only one side.



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In addition to the full-length lockers, there are 50 cubic-foot lockers. These come in tiers of six and are strategically arranged around the room to avoid congestion in getting to them.

Various intramural and gym basketball squads make good use of the room. They keep their uniforms in the small lockers, and use the full-length compartments for street clothes. Before going up to practice, they transfer their combination locks from the big to the small lockers.

The second locker room is reserved for varsity teams. It has full length 15 by 15 lockers with combination padlocks, and an adjoining shower room.

You can go from one locker room to the other by way of one of the shower rooms (see layout). A doorway makes this possible. When the door is locked, the rooms are completely shut off from one another. They can then only be reached by stairways under the bleachers on either side of the gym.

The shower stalls are of colored glazed tile with slip-proof, germ-treated tile floors. One stall serves daytime gym classes and visiting teams; the other is reserved for the varsity. But the resources of both may be pooled whenever necessary.

Conspicuously placed in front of each room is a footbath tray containing an athlete's foot solution. There are eight showers per room and a built-in urinal along the side.

The building is completely equipped with an RCA public address system, with loudspeaker attachments in every classroom, shop, laboratory and gymnasium. Special provisions have been made for the gym and auditorium. Individual microphones may be plugged in here to give the instructors absolute freedom of operation. This, of

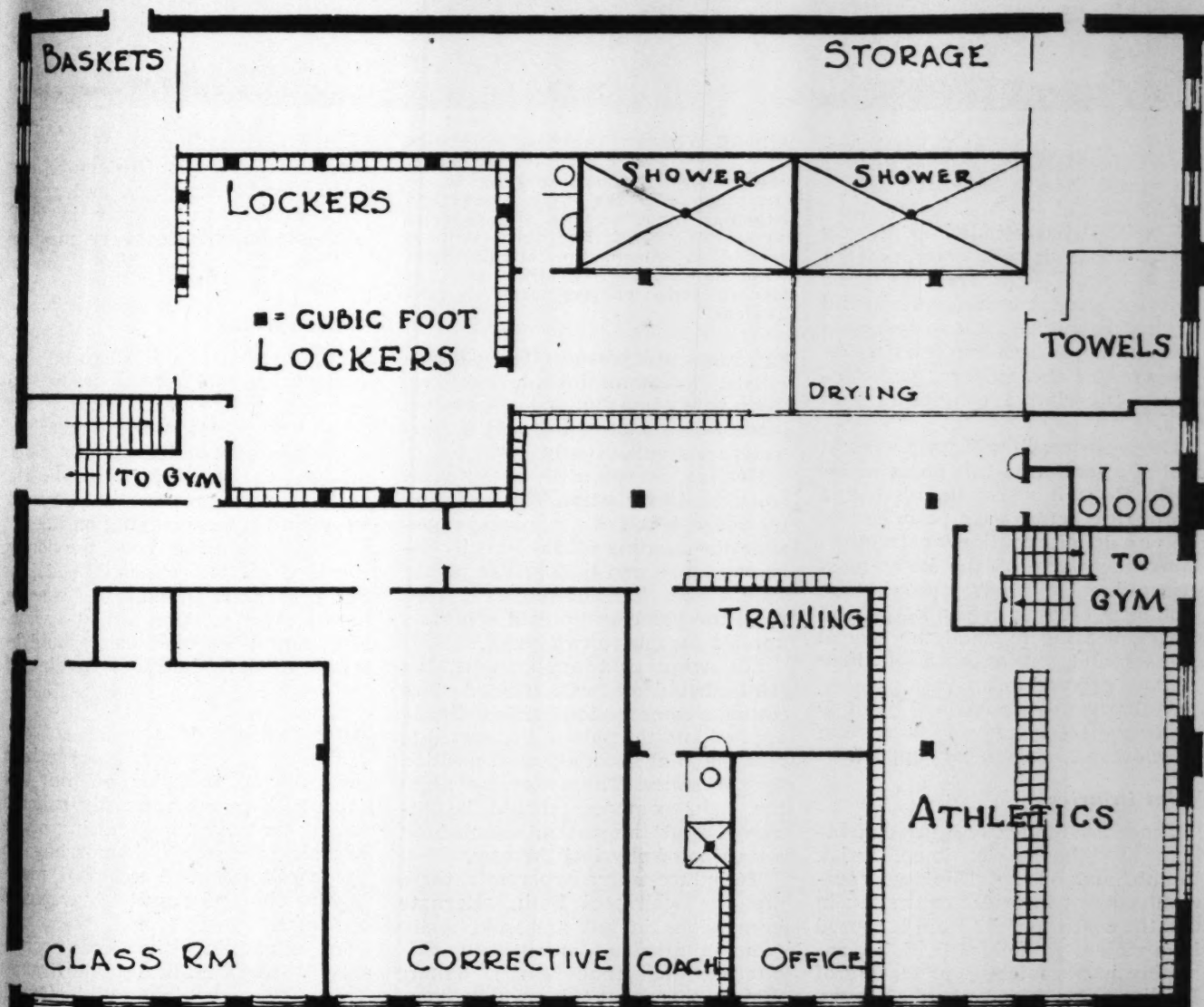
LAYOUT OF LOCKER ROOM: Featured prominently are two shower stalls, separate quarters for gym classes and varsity teams, a basket room, a corrective room, and a classroom. The stairways leading into the locker rooms are located under the bleachers on each side of the gymnasium.

course, is not true of the other rooms in the building. These units can be reached only from the principal's office.

Our purpose in having the sound system extended into the gym is to supply game audiences with information essential to the enjoyment of the contest. The "mike" is plugged in at the timekeeper's bench. A student with a good voice and who is familiar with the game and the players, is entrusted with the announcing.

He names the players who score, gives the violations, who committed them, against whom, and the number of free tries. At the start of the game, he informally introduces the players and the officials. When a doctor or anyone else is wanted on the phone, he summons them forth.

While we haven't as yet supplied music over the loudspeaker during games, we sometimes use it for that purpose during the noon hour for dancing. A phonograph is connected to the central sound control unit in the principal's office.





TREATMENT OF BASKETBALL INJURIES

By Frank Wiechec



Frank Wiechec, trainer at Temple University, describes the causes and treatments of the common injuries in basketball.

GOOD basketball coaching these days is consummated with good training. The fruits of good coaching are sound playing techniques. But this alone is no assurance of success. The breathless pace of the modern game demands superlative conditioning as well.

The wise coach will pay a great deal of attention to this phase of his work. He will warm up his squad thoroughly before each practice and evolve a definite routine for strengthening the parts of the body most susceptible to injury; that is, the shoulders, elbows, hands, knees, and ankles, bearing in mind the special stresses and strains each of these joints is exposed to.

A thoroughly toughened joint is better protection against injury than the cleverest mechanical support.

Joint injuries

The most frequently injured members are the ankle, knee, wrist, thumb, and fingers. The two common types of injuries are the sprain and the contusion. A sprain is caused by a violent wrench of the joint, resulting in a stretching or tearing of the ligaments, blood vessels, nerves,

ANKLE STRAP: The first strip runs from above and in front of the ankle, down under the heel and up to an anchorage below the origin. The second strapping anchors on the side opposite its starting point. The third strip is applied as shown. One circular base strip, nine supporting strips and one binding strip on top comprise the bandage.

and other soft tissues. The characteristic symptoms include swelling, sharp pain when motion is attempted, tenderness on pressure, and a protective muscular spasm.

Healing is retarded by effusion from the torn tissues. The first aim, therefore, is to limit as much as possible the flooding of the joint by escaping blood and lymph. The player should be immediately removed from the game and a cold compress applied for one to two hours.

Following cold applications, the joint should be well padded with cotton, a compression bandage firmly applied and the patient instructed to rest the joint in an elevated position for 24 hours. The following night the tight compress should be removed and the patient started on a routine of physical therapy.

To induce active hyperemia, there are the whirlpool bath, alternate immersions in hot and cold water (four minutes hot, one minute cold; alternate ten times each), baking with a therapeutic lamp, hot com-

presses, and diathermy. After treating for about 30 to 45 minutes, the limb may be massaged and gently exercised. If the player is vital to the team, his recovery may be hastened by giving him three or four daily treatments.

Ankle sprains

Sprains to the ankle can be prevented by intensive loosening-up exercises before each practice and game. The Temple team limber their ankle joints by walking on the outer borders of the feet and by shifting the entire weight on one everted ankle and then springing on it.

If the ankle has been previously sprained, no chances should be taken. The player should exercise his ankle before practice, then adjust a wrap. For games, the exercises should be followed by adhesive strapping of the joint.

Knee contusions

The most frequent type of knee injury is a contusion of the joint capsule. This is commonly called a traumatic synovitis. Bruising of the capsule produces a hemorrhage in the capillaries and synovial membrane. The end result is "water on the knee."

In examining the knee contusion within a minute of the trauma (blow), no swelling will be found.

The player will complain only of tenderness in the contused area of the capsule.

Despite the immediate absence of excess fluid in the joint, it's a mistake to permit the player to continue. Further use of the knee will produce more bleeding from the torn capillaries and additional fluid will accumulate in the joint. Keeping the player out of the game and immediate treatment will shorten the disability period by minimizing the amount of fluid allowed to accumulate.

If the injured player is allowed to continue, his disability period is increased 100 percent. The immediate treatment is the same as for a sprain. It is focused at control of the bleeding and limitation of the swelling and flow of fluid into the tissues. The more accumulation of fluid in the joint, naturally the longer it takes to absorb it.

Wrist sprain

Often a player will fall and sprain his wrist. Or a player may start the season with a sprain inherited from football. Treatment should be as previously described.

The wrist should be protected for both practice and game. Tape should be applied over gauze, not directly to the wrist. In applying the gauze-tape bandage, have the player extend his hand with the fingers and thumb spread fan-wise to the fullest extent.

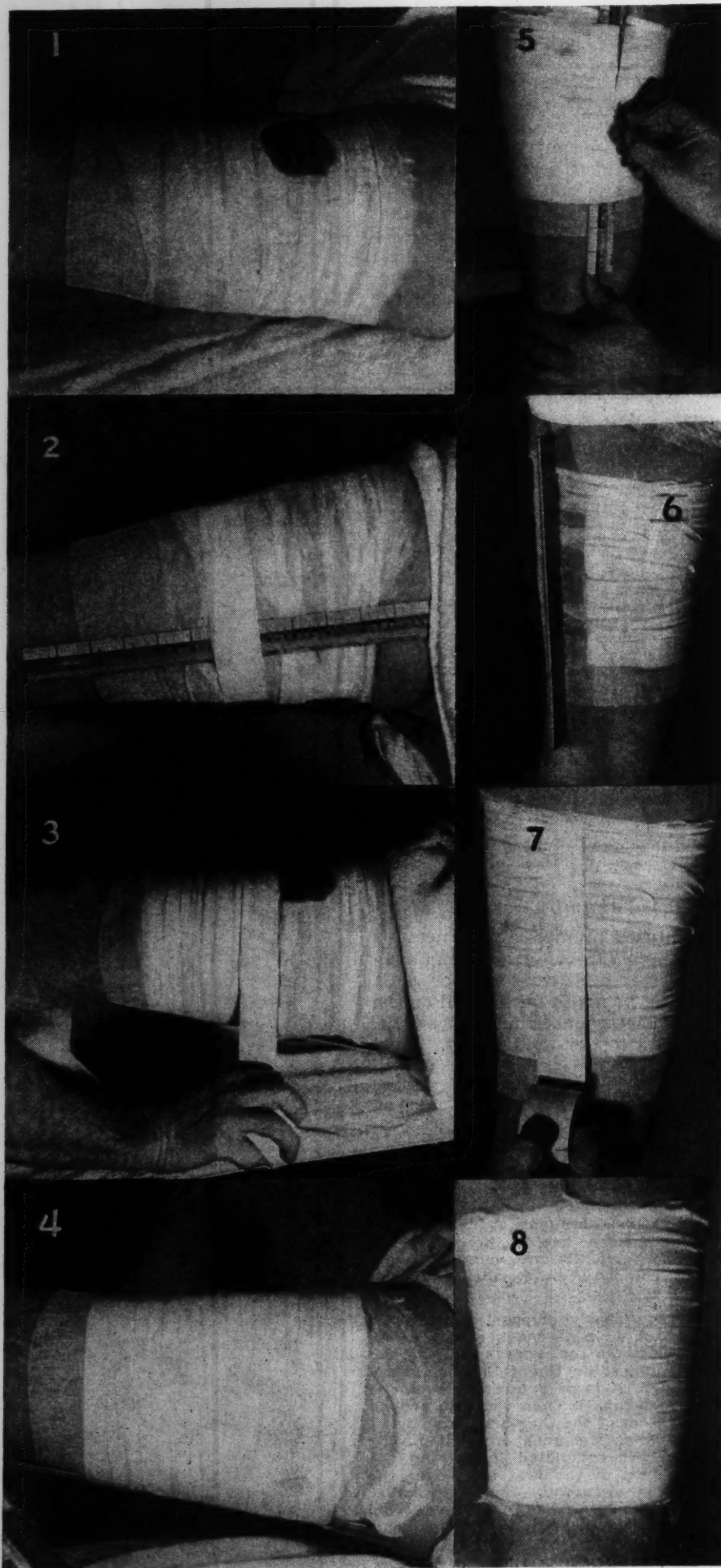
Contused thumb

Contused thumbs are the nemesis of many basketball players and boxers. After a direct blow, or as a result of being hit with a ball on the tip of the thumb, the joint swells, becomes tender and aches. Treat

LEFT: Ankle wrap to prevent sprains. This is an improvement on the figure 8 bandage, as it yields more support. The bandage originates in back of the ankle bone, and is brought over the bone, around the foot and up the heel to the starting point. Six or seven such wrappings comprise an excellent support.

RIGHT: Adhesive support for sprained thumb. A strip of one-inch tape is applied around the upper part of the palm, under the thumb. The ends are left open. A large enough strip of one half inch tape is then wrapped around the bottom of the thumb to leave a tail effect when the ends are united. The "halter" is completed by joining the loose ends of the first strip over the tail of the second. The last picture shows the gauze and adhesive strap for a sprained wrist. While the bandage is being applied, the wrist is tensed and the fingers kept spread.





STRAP FOR CHARLEYHORSE: The spot on the initial gauze wrapping in the first picture indicates the source of the injury. Before tape is applied, a ruler is placed on back of the leg to assure an even and firm pressure over the entire area. Individual strips of tape are then applied over the gauze bandage and ruler. The ruler is then cut out with a razor blade and a single strip anchored over the loose ends. You now have a bandage that, while applying firm pressure over the injured area, does not hinder movement in the hip and knee joints.

with heat, massage and strapping three or four times a day.

Contused finger

The cause, symptoms and treatment for a contused finger are the same as for the wrist and thumb. It is of utmost importance to treat intensively to prevent permanent stiffening and enlargement of the involved joint.

Muscle Injuries

Hematoma or "charley horse"

This type of injury is usually caused by a blow on the muscle while it is contracting. The fibers pull apart and blood pours into the newly formed gap. The muscle then becomes stiff and tight through reflex nerve irritation, and bleeding continues until swelling appears.

Muscle strain

Any part of a muscle or its tendons may be partially or completely torn by a violent wrench or sudden forceful contractions before the muscles are properly "warmed up." These injuries are usually thought of as a "pull." The extent of a tear varies from a mild "pull," characterized by a rupture of a few fibers, to a complete severance of the muscles. The strain manifests itself by acute pain and immediate loss of function of the muscle involved.

A "charley horse" is distinguished from a "pulled muscle" in that a "charley horse" is usually the result of trauma and is not as deep seated as a muscle strain.

The aim in treating muscle injuries should be to prevent, as far as possible, the development of a clot. Hence, it is important to apply immediate compression in order to reduce the amount of bleeding and to shorten the time of recovery. Compression, therefore, with the application of an ice bag to constrict blood vessels is the first principle in the treatment of muscle injuries.

Injuries of this type are difficult to treat with most heat methods be-

cause they are so deep-rooted. However, the advent of short-wave diathermy provides a most effective and penetrating agent for producing heat.

Foot Disabilities

Of prime consideration are a player's feet; they should be well protected. A player is useless if his feet are not in shape. The three most common afflictions are blisters, caluses and metatarsal pain.

Blisters should not be found once the season gets under way. Ill-fitting shoes and socks that are too loose, too tight or have been put on carelessly will produce blisters. A player should drop out of practice if he

feels a burning sensation in his foot; this is the sign of a beginning blister.

Open the blister with a sterile instrument, let out the fluid, paint the torn area with merthiolate, and apply an antiseptic ointment.

To prevent blisters, especially at the beginning of the season, the following is recommended: wear two pair of socks during practice, sprinkle powder in the shoes, apply adhesive or moleskin on the soles of the feet, tops and sides of toes, on heels or wherever friction might occur.

Callus

Poorly fitting footwear, dropping of the metatarsal arch and poor habits of walking and running all lead to the pronounced thickening of the skin we call callus. Of most importance in the treatment is the removal of the cause. Soak the foot in a solution of salt and water to

soften the callus. Shave off as much of the softened callus as possible with a sharp scalpel or razor blade, then paint the area with tincture of iodine.

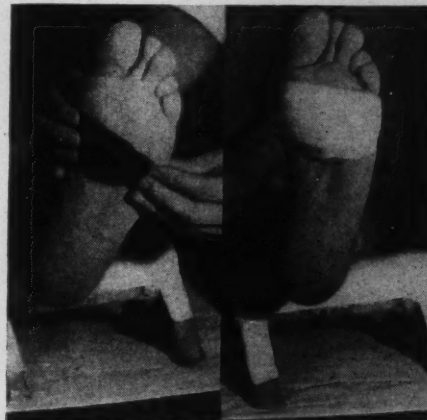
Metatarsalgia

This is one of the most common ailments of the feet. Due to a weakening of the ligaments holding the bones of the front arch, the heads of the metatarsal bones drop and hence take a constant pounding and bruising in walking and running. The skin forms layers of callus as protection, but this only adds to the discomfort.

(Concluded on page 25)



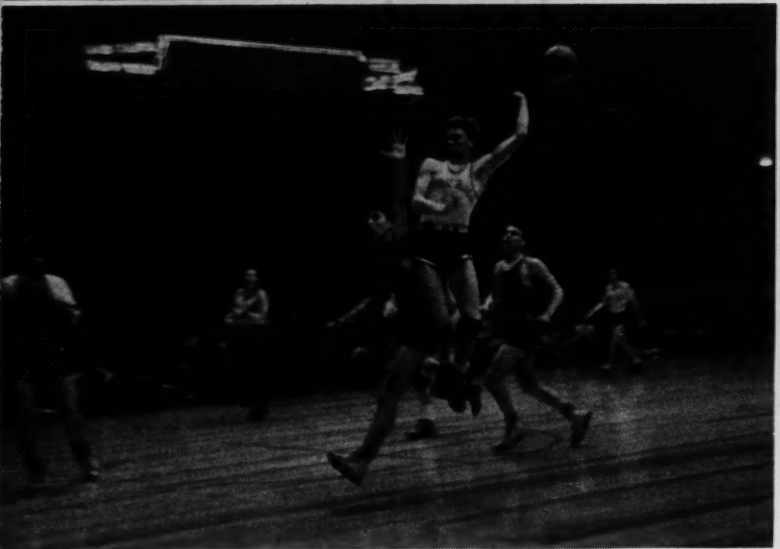
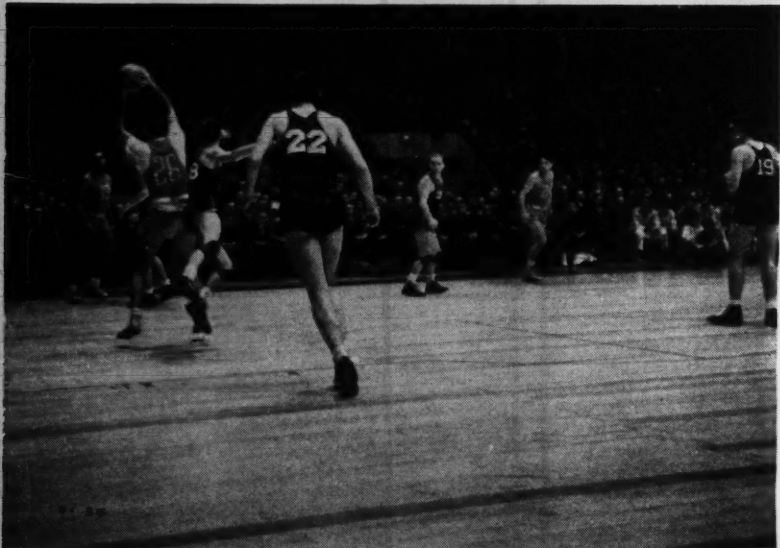
ABOVE: Exercises for the strengthening of the ankle joints; walking on outer borders of feet (top) and shifting the weight to borders and springing.



ABOVE: Felt pad for a weak, painful arch (metatarsalgia). A pad is placed in back of the heads of the metatarsals and strapped in place with adhesive.

BELOW: A pressure elastic bandage to absorb fluid over the knee joint (water on the knee). First, two long strips of one-half inch tape are run down the sides of the leg. Upon reaching the knee, these strips are turned over so that the adhesive sides are facing up. Cotton is placed over the swollen area for compression and an ace elastic bandage then applied tightly over the entire area. The initial strips are then brought up to anchor the bandage. Additional anchoring strips above and below the knee complete the wrap.



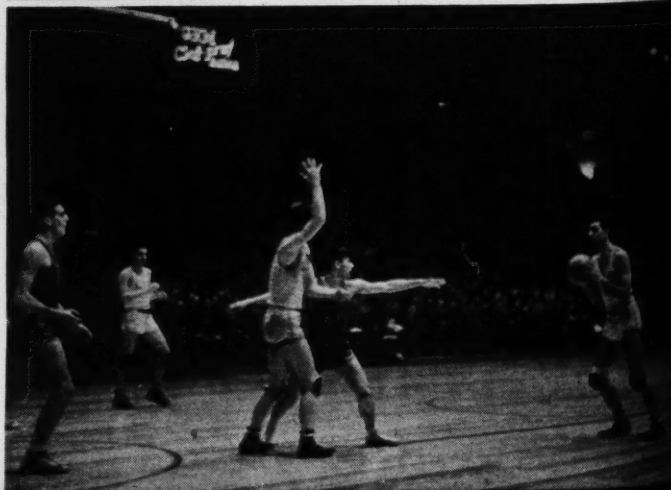


The top-most picture may well serve as an object lesson on good timing. The pivot has the ball and a teammate is driving down the center toward him. By the time the cutter reaches the ball-handler, another man (at the far left) will be on his heels. In the center picture, the man guarding the pivot has tried to intercept a pass he had no business going for. The passer has cleverly aimed the ball high and inside. All the receiver need do now is pivot to his left and shoot. Directly above is the acrobatic Bob Davies, of Seton Hall, in one of his specialties—a backhand, overhead pass while flying through the air!

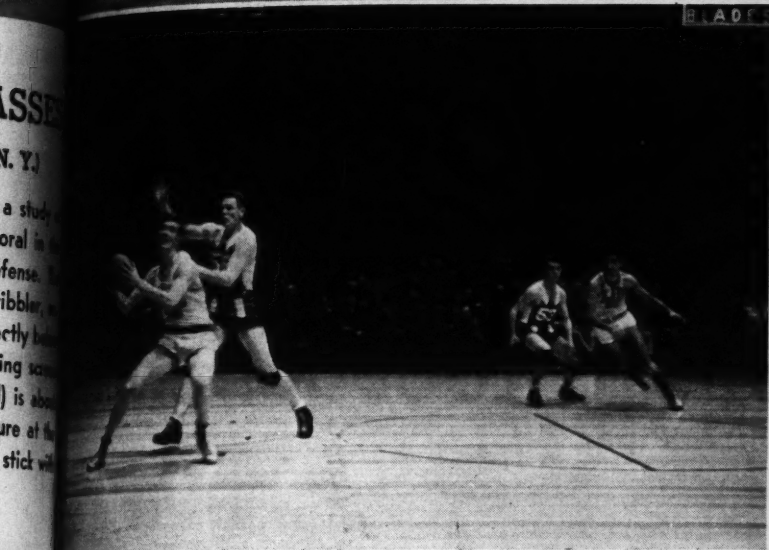
SHORT SHOTS AND PASSES

(Action at Madison Square Garden, N. Y.)

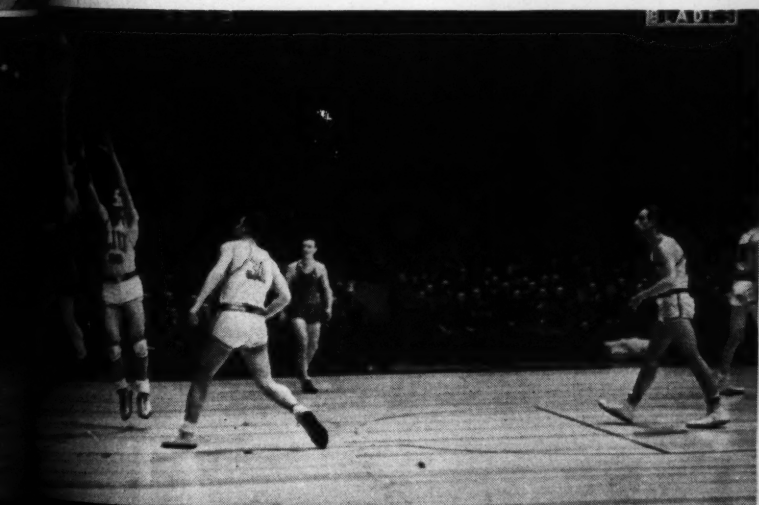
EXCELLENT opportunity is afforded here for a study of quick-developing plays and strategies. The moral in the above picture is never turn your head on defense. The dark-shirted guard has turned to follow the dribbler, enabling his man to cut down his blind side. Directly below is a play in the making. No. 29 sets up a moving screen for No. 26, while the dribbler (partly obscured) is about to drive around a post in the lane. In the picture at the bottom, the guard is in a quandary. Should he stick with his man or go for the shooter?



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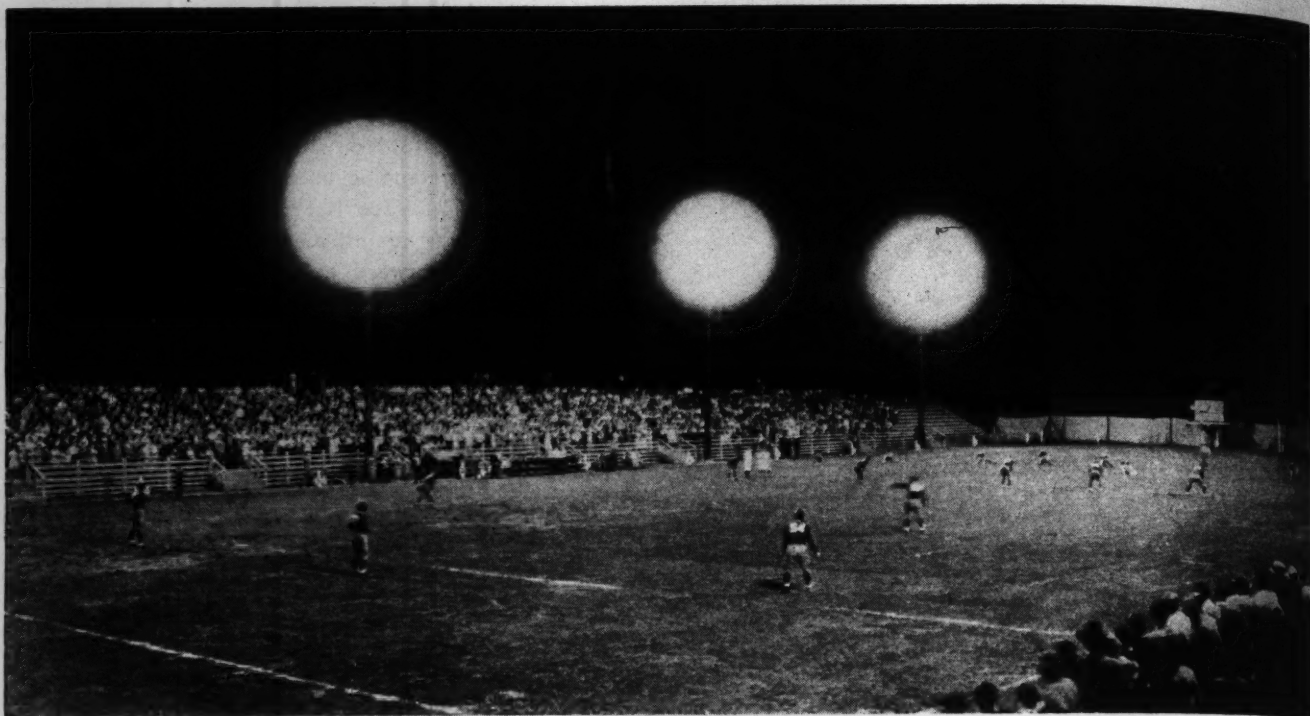


The two-hand overhead pass in the top-most picture is ideally suited for feeding purposes. It is easy to control, accurate and practically impossible for the guard to deflect. The ball-handler (directly above) is cleverly baiting his guard. Instead of pivoting and laying up the ball with his left hand, as his guard expects him to, he feints. After the guard hurtles by, he will pivot and shoot with his right hand. The value of ambidexterity is graphically illustrated below. Having no shot from the right side, the shooter has squirmed over to the left and is laying up the ball with that hand.



The picture directly below is noteworthy for the form the shooter is displaying. This is the type of shooting Clair Bee teaches at L. I. U. Feet are on a line and comfortably spread, weight forward, arms extended with palms facing the basket, and eyes trained on the front rim. In the center picture, the ball-handler has caught his guard flatfooted with a sharp pivot and dribble. The guard is standing up too straight to be playing so close to his man. The last picture shows the clever use of a blind pass against an all-court defense. The passer looks straight forward as he slips a bounce pass under his guard's arm.





Courtesy Benjamin Electric Co.

STANDARDS FOR FOOTBALL FLOODLIGHTING

By Ralph A. Piper

Ralph A. Piper, assistant professor of physical education at the University of Minnesota, has been observing and chronicling the trends of night football for many years. His article is a condensation of one of the chapters in his new book, "Night Football," an exhaustive text covering the status, principles and standards of floodlighting.

THE tendency in floodlighting installations is to subordinate quality to cost; to decide how much money can be appropriated for lighting a field, then to shop around for a system that can be obtained for this amount.

With money scarce as it is, you can hardly blame the administrator for this pecuniary perspective. A much sounder approach, however, is to determine first how much equipment will be necessary to provide efficient lighting, to get estimates on the cost of purchasing and installing this equipment, then to find out whether or not the necessary funds can be appropriated and to decide whether this expenditure is warranted.

Fundamental factors of lighting which must be considered include: (1) the surfaces to be illuminated; (2) the amount of necessary light; (3) the quality of light; (4) the distribution of illumination.

A direct relationship should exist between the number of poles and the distance of the poles from the sidelines. Where the poles are to be located 30 feet or less from the side-

lines, a 10-pole layout with five poles on each side is recommended. If fewer poles are used, there will be so much space between them that it will be difficult to obtain a sufficient level of illumination between the poles.

When conditions make it necessary or desirable to place the poles from 30 to 75 feet from the sidelines, an 8-pole layout with four poles on each side is recommended. A larger number of projectors are mounted on each pole to obtain an equal or greater connected kilo-

watt load, and the poles must be proportionately taller.

The National Electrical Manufacturers' Association recommends (see table) an equal number of floodlights on all poles in a given layout: eight units per pole in a 10-pole layout, 10 per pole in a 8-pole layout, and 14 per pole in a 6-pole layout for a Class A installation and a correspondingly lesser number of units for B, C and minimum plants.

The total kilowatt load is the sum of the kilowatt output of all the

(Concluded on page 24)

STANDARD LAYOUTS FOR FOOTBALL LIGHTING

Recommended by the National Electrical Manufacturers' Association

	Distance from Edge of Field	No. of Poles	Units Per Pole	Total Units	Total KW Load*	Mounting Height
CLASS A	15-30 ft.	10	8	80	139	40-50 ft.
	30-75 ft.	8	10	80	139	50-75 ft.
	75 or over	6	14	84	146	75-120 ft.
CLASS B	15-30 ft.	10	6	60	104	40-50 ft.
	30-75 ft.	8	8	64	111	50-75 ft.
	75 or over	6	10	60	104	75-120 ft.
CLASS C	15-30 ft.	10	4	40	70	40-50 ft.
	30-75 ft.	8	5	40	70	50-75 ft.
	75 or over	6	7	42	73	75-120 ft.
Minimum	15-30 ft.	8	4	32	56	40-50 ft.

*Operated at 10 per cent overvoltage

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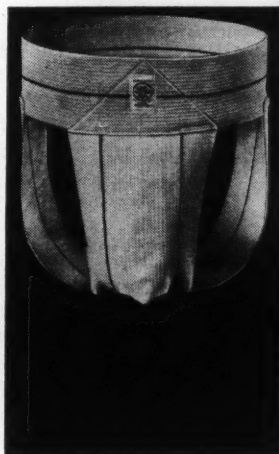
However, in compliance with vital war needs, it is our duty to exert every effort towards simplifying production and conserving materials. In this we ask your help—that of confining your orders, wherever possible, to our standard numbers, overwhelmingly the favorites of coaches and athletes everywhere. All standard numbers will be shown in our new catalog, out in January.

Dana E. Morrison (Signed)

President, BIKE WEB MANUFACTURING COMPANY



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Keep 'em Playing



NEVER before has the sports future of America been the subject of so much speculation. Exactly how will our athletic programs fit into the emergency? Will they be curtailed? Will they continue uninterrupted? Or will they be augmented?

We don't know the answer. But, to our eyes, there can be but one answer. No retreating. No retrenching. But a continuation and intensification of sports. For, make no mistake about it, sports are essential in the life of a country at war.

We've said it many times before and we'll keep saying it: There is no better way of building physical and moral fitness than through sports. In peace, this fitness is the crux of successful democracy. In war time, our safety, our very existence, depends upon it.

To sow the seeds of physical and moral fitness, we need a program of activity that is vigorous and stimulating. Our games are the quickest, surest ways of building a strong physical and moral fiber, a morale that will not crack under pressure.

Sports are indispensable in developing teamwork, tenacity, courage, leadership, and loyalty. But we need a more effective program than that provided for youth during the past twenty years.

The production of machines can be rushed, but building manpower is a twenty-year job. After learning this lesson in the last war, we had to learn it all over again the past year. Nearly 45 percent of the men called to the colors in 1941 were rejected for failing to pass the physical examination.

That's why we advocate an intensification of physical education and sports. We need more facilities, more leaders and a concerted, coordinated program. Our athletic facilities should be improved and extended to give *every pupil* a thorough physical education. Intramural as well as varsity teams should reap the benefit of this intensive in-

We believe in:

1. The expansion of the physical education program to a minimum of one hour a day, with a corresponding increase in facilities and equipment.
2. The intensification of varsity and intramural athletic programs.
3. Increased emphasis on the importance of food and a balanced home training table.
4. The introduction of courses in first aid and hygiene.
5. Increased emphasis on such health activities and sports as walking, cycling, bowling, riflery, boxing, and all competitive sports.
6. Expansion of community and after-school programs for both adults and students.

struction. *All youth* must be served.

Nowhere can an intensified program be used to better advantage than in our high schools. Few schoolboys will be affected by conscription, which starts at 20 years. And yet it will be they who will "carry the ball" for democracy tomorrow.

They need, and must have, a program of vigorous athletics that will develop a will to win, to carry on against overwhelming odds and that will be conducted on a high

plane of sportsmanship. Schoolboy games, such as football, basketball, baseball, and the various individual sports educate youth for peaceful pursuits and at the same time contribute to his military training.

Through his training program, the athlete learns to discipline himself. He learns correct sleeping habits, what and what not to eat, conditioning exercises, and other body-building essentials.

In competition, he is pitted against other athletes. He must use his body and brain together. The sum of all this is a cool head, a good digestion, good nerves, a strong grip on the emotions, the ability to make quick decisions, and a capacity to hold out under strain.

We must keep 'em playing. Scholastic Coach has been doing its bit through nation-wide golf, tennis, softball, and badminton tournaments, in which thousands of schoolboys and schoolgirls have participated and are participating in now. Through our physical fitness and health articles, we have pointed out the pitfalls of physical *unfitness* and have advanced remedial programs. So much we have done and will continue doing.

The step is in the right direction. But it is only a step. The exigencies of the emergency demand giant strides. Now is the time to go all out for physical and moral fitness. To this end, we offer the accompanying six-point program.

Most of these represent standards the physical education profession has been striving to attain for years. In many schools, they are already in force. In many others, they may be adopted with little pyramiding of the curriculum. Each school should explore its possibilities and effect the necessary changes.

"If sports are vital, if they are based on character, ability and team play, if they are ardently submitted to the rule of law, then the society which produced these qualities and their canons is inherently safe and living."

NATIONAL FEDERATION NEWS

NINE states were represented at the National Federation regional conference at Salt Lake City: California, Colorado, Idaho, Illinois, Nevada, Oregon, South Dakota, Utah, and Wyoming.

In one of the three main sessions, Ray E. Berry reported on an extensive study of the eligibility rules in various states. He submitted a summary in tabular form. This showed, in rather striking fashion, the many discrepancies that exist in rules which are based on the same philosophy.

While every state, for example, attempts to insure amateurism, there is a wide variation in their interpretations. On one hand, many states have taken a very definite stand in eliminating expensive prizes and awards. The practice here has been to prohibit awards worth more than a dollar.

A few states go so far as to specify that no award other than the school letter may be given by a school to its athletes. In many states, the acceptance of any prize other than the customary medal in a meet or tournament constitutes a violation.

In contrast to all this, a few states, including California and Washington, have attempted to base their amateur rule on that of the A.A.U. Among other liberal interpretations by that organization is one which permits the acceptance of an award worth as much as \$35.

The tendency in connection with maximum age limit has been toward a lower limit. Most states permit participation until the 20th birthday. Some states, such as California, Oregon and Utah, permit participation until the 19th birthday, with certain provisions relative to the right to finish a season or, in the case of California, to finish the year.

Most states base their eligibility clause upon the registration of the boy before a certain date. There seems to be no rhyme or reason to this clause. In 12 of the western states, five different dates are listed: 9th day, 10th, 11th, 15th, and 16th. Why can't a single date be arrived at which would be satisfactory to every state?

There is a similar variation in the number of attendance days which constitutes a semester insofar as athletic participation is concerned. In 12 of the western states, six different time periods are in force.

(Concluded on page 40)

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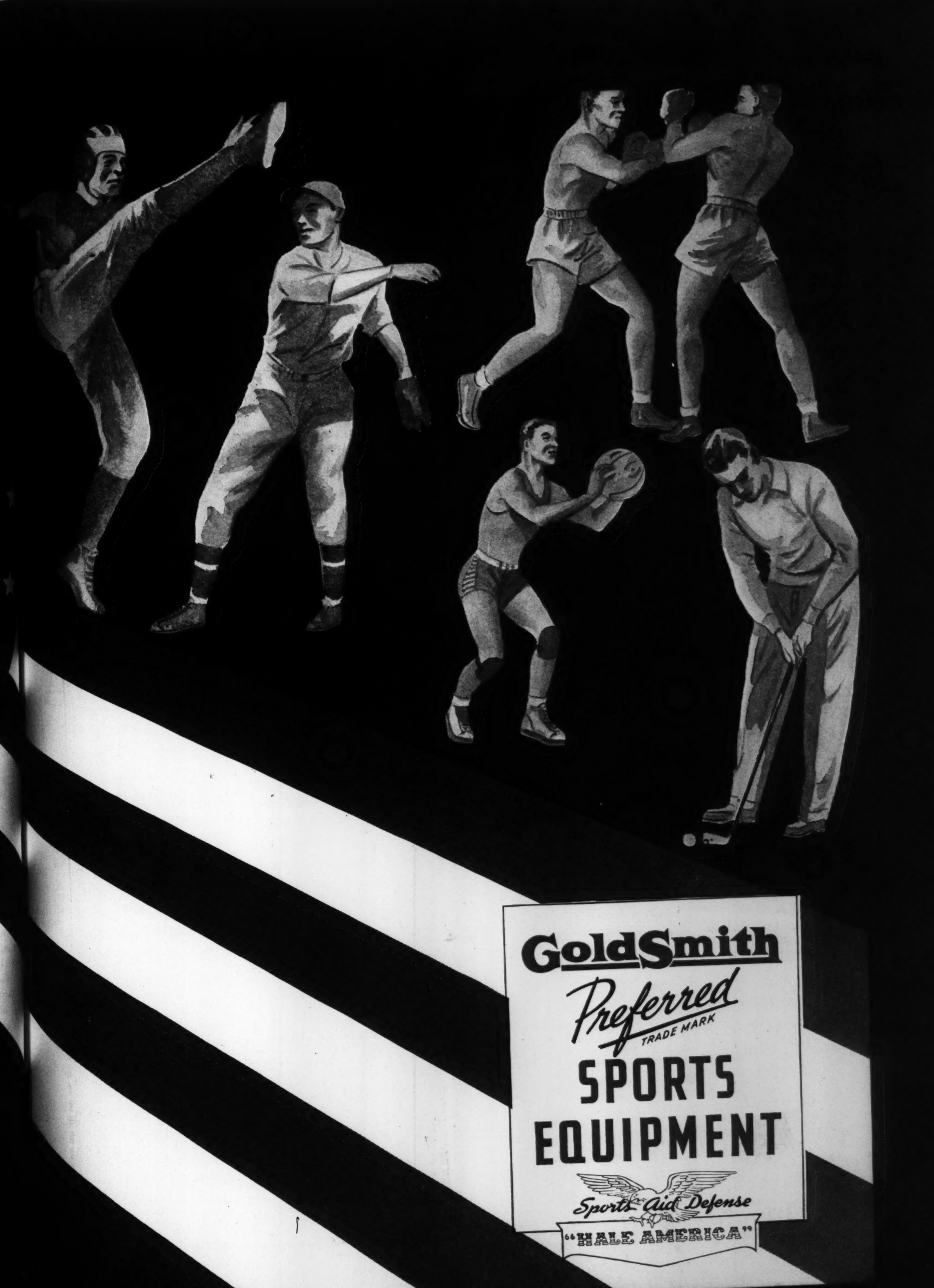
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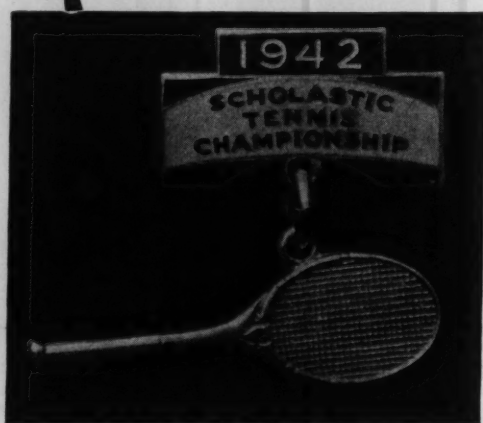
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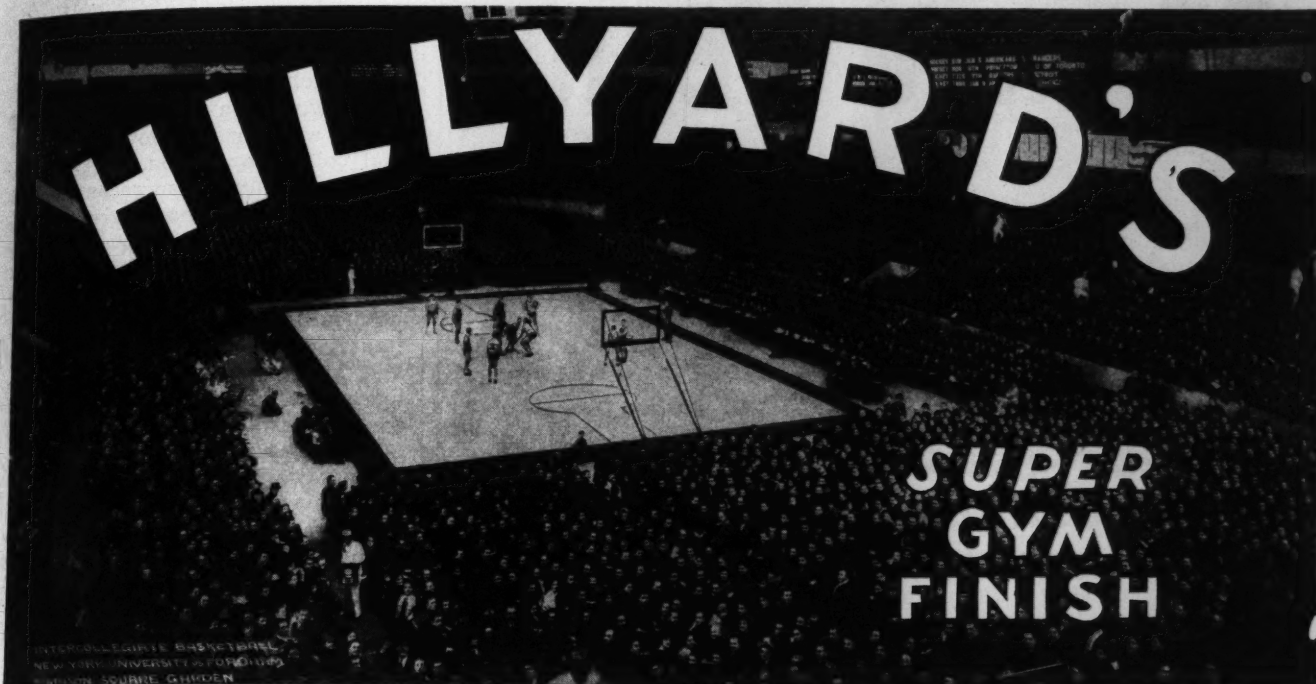
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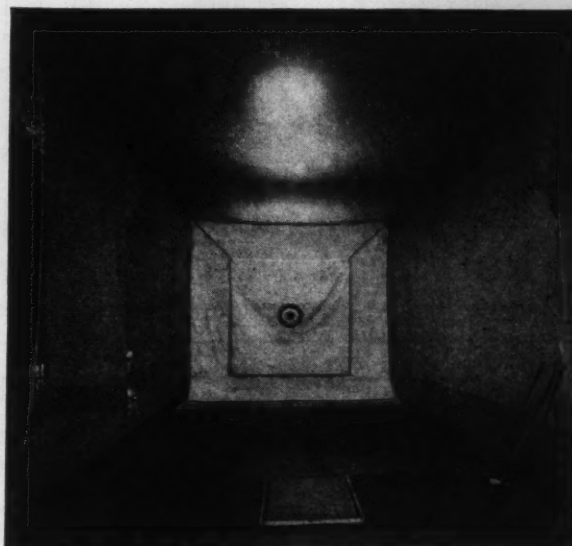
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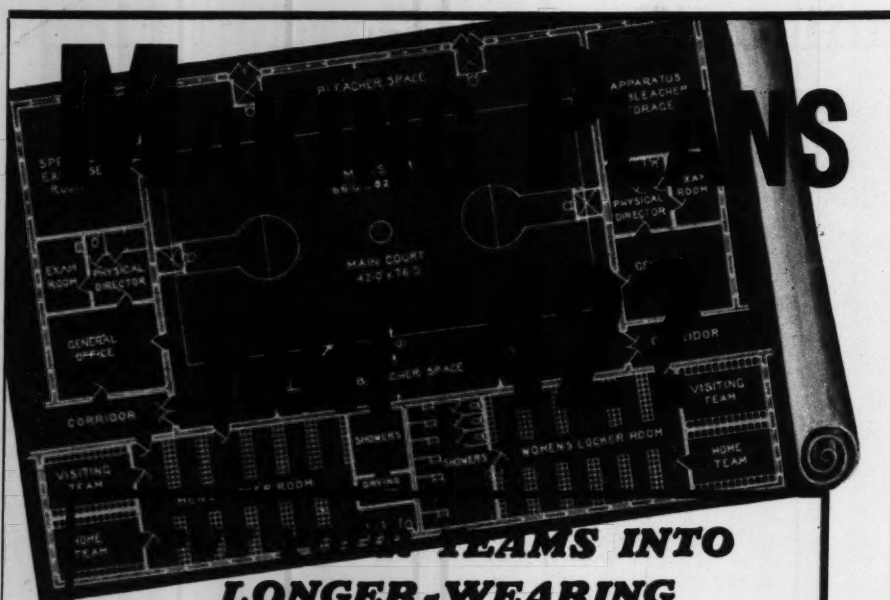
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Geared to Meet Your Wartime Teaching Needs

Football Lighting

(Continued from page 16)

projectors and lamps. For example, a field lighted with 40 units, each of which burns one 1500-watt lamp, would have a total output of 60,000 watts or 60 kilowatts at normal voltage operation.

The minimum load recommended by equipment manufacturers varies from 48 to 60 kilowatts. The N.E.M.A. standards call for a minimum of 56. It has been found economical to operate lamps at approximately 10 percent above rated voltage. This practice is called overvoltage operation, and is recommended for systems which are used less than 200 hours a year.

Operation of the lamps at 10 percent overvoltage increases light output approximately 35 percent at an increase of only 16 percentage in wattage consumed. The average life of the lamps is decreased about 70 percent, or from a rated life of 1000 hours to an actual life of 300 hours.

Principles and standards

Projectors with cover glasses are preferable to open floodlights regardless of mounting height or distance from sidelines. If open floodlights are installed, the use of hard glass lamps is recommended.

Overhead wiring is as efficient as underground wiring but the latter is preferable from the standpoint of permanence and safety.

In general, beam spreads of projectors should be wider at short mounting distances and narrower as the distance between the poles and the near sideline increases.

Floodlights with painted reflector surfaces are not recommended for football. Single-lamp floodlights, housing 1500-watt clear glass lamps, are considered standard equipment.

Projectors should be mounted at least 40 feet above the ground at 15 feet from the sidelines and at increasingly greater heights as distance from the sidelines is increased.

The end poles should be located opposite the goal lines or between the goal and the end lines. Wooden and metal poles are equally satisfactory.

Much of the depreciation to floodlights is caused by an accumulation of dust. This may be removed by washing with soap and water.

The installation cost of lighting systems in high schools range from \$150 to \$35,000 with an average of about \$3000. Cost of the lights per game range from \$1.50 to \$60 with the average at \$9.25.

A small proportion of high school and college plants are equipped with 12, 14, 16, and 18 poles, but the large majority resorts to standard 6, 8 or 10 pole layouts.

Poles are most frequently located 15 feet or less from the sidelines on high school fields. Poor distribution of light results in many cases where there are only four poles on each side of the field 15 feet or less from the sidelines. Poles located less than 15 feet from the sides are definite accident hazards.

The average connected kilowatt load on 689 high school fields is 59 kilowatts which is below the minimum recommendation for a Class C installation. The average load on college fields is 77 kilowatts at normal voltage—below Class B minimums. A conservative estimate would place at least 50 percent of all high school and college fields in the inadequately lighted class.

High schools have increased their gate receipts by approximately 200 percent over day games. Colleges report an average increase of 134 percent.

Basketball Injuries

(Continued from page 13)

Heat, contrast baths and massage will alleviate pain. A bar-like felt pad, three-eighths of an inch thick, an inch wide and three inches long, when fitted on the sole of the foot just back of the tender area, will shift the body weight away from this area.

The common cold

The common cold is one of the greatest menaces to any team. The usual causes are poorly ventilated gymnasiums and dressing rooms, sudden weather changes and the amount and type of clothing the players wear to and from classrooms to the gym. Probably the most frequent cause is the practice of rushing out into the cold night air with wet hair and no hat, after taking a shower.

It has been the writer's experience that when hats or caps are worn outdoors after practice sessions, there is a 90 percent drop in colds. Even a skull cap from the five and ten cent store will serve the purpose. Another method of preventing colds is to require every player to wear a sweat suit over his uniform. After warming up and especially when resting after a scrimmage, they should don sweat clothes; this includes pants as well as shirt. Colds descend when resistance is lowered and the body becomes chilled.

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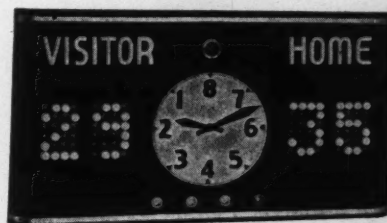
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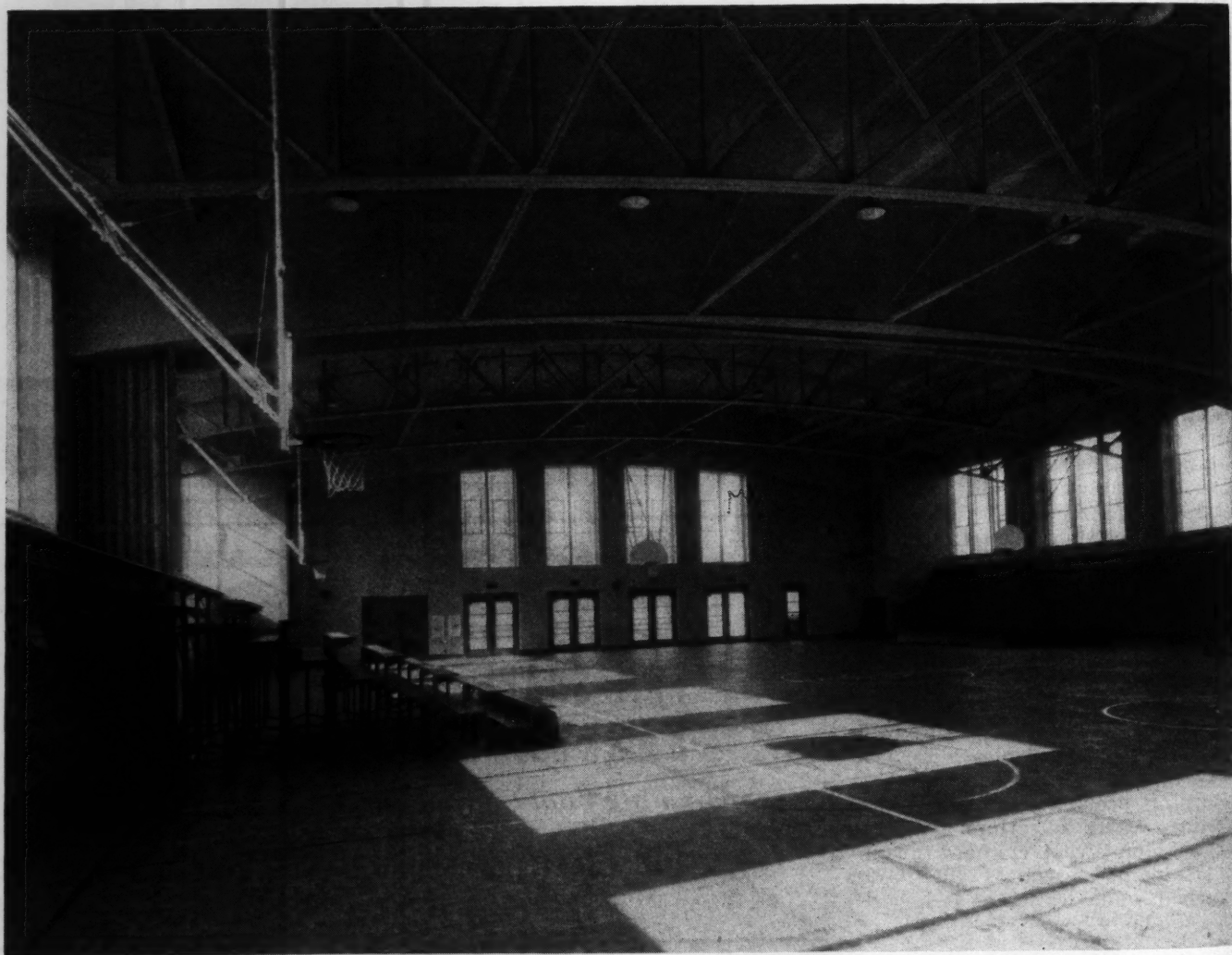
THE EVERWEAR MANUFACTURING COMPANY

SPRINGFIELD, OHIO



Photos courtesy Horn Mfg. Co.

A DOUBLE-DUTY GYMNASIUM



SENIOR high school students at Abington, Pa., may justifiably feel proud of their new gymnasium. One of the largest and most modern gyms built in 1941, it boasts excellent illumination, plenty of room and, despite the absence of end seats and balconies, an unusually large seating capacity.

The roominess of the gym may be attributed in large part to the utilization of both folding bleachers and folding partitions. The picture at the left shows the partitions being closed. When both sections meet, the gym resolves into two completely isolated units—enabling the boys and girls to carry on their programs simultaneously.

The partition is approximately 100 feet long by 24 feet high, soundproof and electrically controlled. The entire load is supported from the overhead trusses. No floor tracks of any kind are employed. Both sides of the gym are equipped with ten rows of all-steel, permanently-installed folding bleachers.

The floor is of durable maple wood block with full-court and cross-court basketball markings. Fan-shaped banks grace each court.

New Books on the Sport Shelf

SWIMMING. By Robert J. H. Kiphuth. Pp. 110. Illustrated—photographs and drawings. New York: A. S. Barnes & Co. \$1.

FEW indeed are the voices that can speak with more authority on swimming than Bob Kiphuth's. His success at Yale, together with his work on the Olympic swimming teams, have earned for the man a glittering international reputation.

His book is a splendid contribution to the field. With typical ingenuity, he touches upon subjects most dear to coaches' hearts. In an introductory chapter, he presents an interesting evolution of speed swimming and five pages of charts showing the relative contribution of activities to all-around development.

He then plunges into mechanical aids and tests, and pre-water exercises. The latter chapter itself is worth the buck. Kiphuth is a zealot on the subject. He believes a land program of exercises will develop more of the muscular strength and power necessary in swimming than if the same amount of time were expended in the water.

He gives a full program of conditioning exercises for the various events, based on free movements and

pulleys. Eighty-five excellent photos illustrate the exercises.

The Yale coach believes in working the squad together, if at all possible. If a division is necessary, he advocates working the free-style men in one group, and the back- and breast-strokers in another. "It can't be emphasized too strongly that the squad should work together once a day for the sake of general spirit and morale."

Kiphuth divides the competitive season into three stages. The first part is devoted to fundamentals such as starts, turns, breathing, balance, stroke, and the ideal to be achieved. The middle third is taken up with the development of endurance, and the last third is devoted largely to a polishing up of skills.

In clear, concise fashion, he analyzes the fundamental strokes and gives a general program of speed and pace. The text is capped with a chapter on training.

New rules books

The 1942 Swimming Guide. Edited by John Miller. Contains the official N.C.A.A. rules for swimming, fancy diving and water polo. Also: the rec-

ognized high school and college records, a directory of swimming teams (high school and college), a review of the 1941 season, team photos, and several interesting technical articles. Free-style, breaststroke and backstroke swimming are covered, respectively, by John Macionis, Dick Hough and Bill Beebe.

The 1941-42 Wrestling Guide. Edited by Dr. R. G. Clapp. In addition to the official rules, the book contains a review of wrestling in colleges and high schools with collegiate records and schedules, team pictures and many technical articles. Outstanding contributors include Hugo Otopalik, Clifford Keen, Henry Stone, Bill Sheridan, Art Griffith, and Coleman Griffith.

The 1942 Boxing Guide. Edited by Dr. Carl B. Schott and Hugh R. Riley, Jr. Included here are the official rules, a college and high school review of the past season, a list of college coaches and another of approved officials, individual and team pictures, and a number of good technical articles.

The 1942 Ice Hockey Guide. Edited by Louis F. Keller. As in the other books, there are helpful technical articles, records and reviews of the past season, a list of high schools and colleges which have hockey teams, and the official code of rules.

Each of these guides sells for 50 cents. The publishers are A. S. Barnes & Co.

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Photos courtesy Unit Structures, Inc.

BUILDING A GYM ROOF WITHOUT STEEL

By M. C. Hanisch, Jr.

UP UNTIL the present decade, the construction of field-houses and gymnasiums was a very expensive proposition due to the unusually large roof span involved. As a result, many schools which had need of such structures either had to go without them or to settle for an inferior structure with the money they had available.

Today, however, there is an economical solution to the problem. With the perfection of Unit glued laminated arches, it is possible to build a good-sized fieldhouse for less than \$30,000. That isn't exactly pin money, you may think, but it's a bargain when you remember what you're getting.

These laminated arches have a

great advantage over conventional steel truss construction. Because they are prefabricated, they take about one third the time to erect. They are much cheaper, and they allow for lower side walls without sacrificing clearance at the center of the building. A steel truss, with its lower cord set on a low side wall, does not give sufficient clearance for gym activities near the walls.

Lend a decorative touch

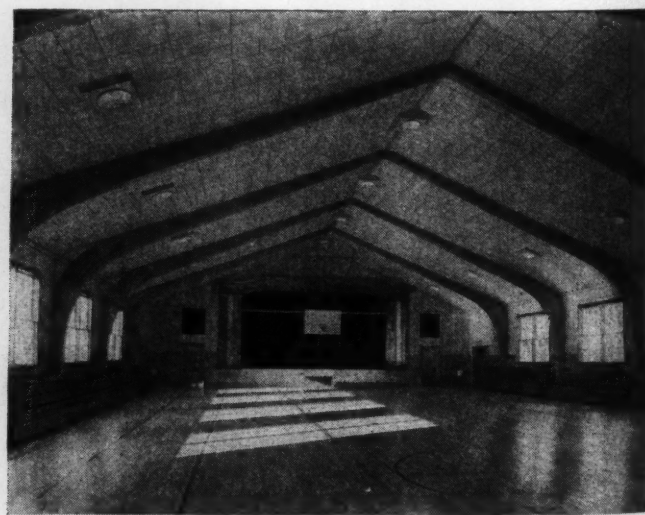
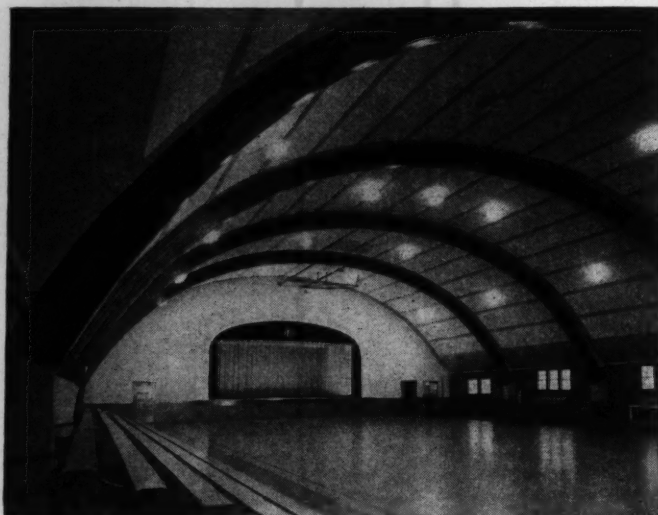
The wooden arches, aside from being practical, lend a richness to the interior that is particularly desirable where the building is to be used as an auditorium as well as a gym.

The beauty and utility of such

structures may be noted in the accompanying pictures. The picture at the lower left shows the interior of the Ellendale, N. D., High School gym.

Ordinarily, when trusses are used to span an auditorium, the side walls must be at least 18 feet high to obtain sufficient height for basketball. At Ellendale, by using Unit wood arches with a 75 foot span, instead of ordinary truss construction, it was possible to reduce the sidewall height to nine feet. The arches rest on concrete buttresses only six feet above the floor. Much more usable space is thus obtained.

Particularly noteworthy is the space back of the arches near the wall line, which can accommodate



heating pipes, ventilation ducts, etc. The arches have a cross section of 9½ by 22 inches. Each span is made up in two parts which are bolted together in the center with two three eighths inch steel plates after the arches are set into place. At the bases, the arches are bolted to shoes that are anchored to the concrete buttresses.

The picture at the top of the opposite page shows the exterior of the building. The decorative treatment of the pilasters lends an unusually attractive appearance to the building.

Another type of laminated-arch design is shown in the picture at the lower right (page 28)—the high school gym at White Lake, Wis. This building, which has an overall dimension of 85 by 115 feet, was built for only \$21,500. The superstructure, entirely of wood, was built on a concrete foundation. Side walls of masonry could have been substituted at an additional cost of \$450. The total cost includes everything: architects' fees, wiring, plumbing, and the air heating and purification system in the 18 by 48 foot basement.

The playing floor itself is 41 by 79 feet with additional room to accommodate 500 people on folding-type bleachers between the arch columns. In contrast to the Ellendale buttress type, the Unit arches here are all made up in one piece. They take the place of ordinary roof beams and supporting columns. The arch columns are anchored directly to the foundation. The side walls are 14 feet with a maximum clearance of 25 feet in the center.

In the design and fabrication of the arches, one-inch boards were properly processed and glued under high pressure, thus eliminating mechanical fasteners. Arches with spans up to 152 feet have been made in this manner, such as the hangar for Northwest Airlines, Inc., at Fargo, N. D.

Unit arches have a special advantage in that they can be designed and shaped to follow the function of the building, thereby eliminating all waste space. Because of the solidness of the cross section, the arches are considered highly fire resistant. Insurance rates are equal to those for exposed steel trusses.

The natural beauty of the wood has great decorative value. The variations of grain in the individual laminations produce an inlaid effect, which is greatly enhanced after the surfaces are planed, sanded, stained, and varnished before leaving the factory. The finished arches are shipped in two sections.

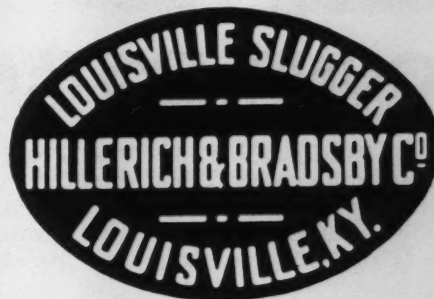
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Courtesy R.C.A.

SOUND SYSTEMS AND THEIR USES

THE proof of the pudding, we know, lies in the eating. Similarly, the proof of the usefulness of public address systems—if any proof is needed—and their universal acceptance by teachers, administrators and public, lies in their mushroom growth in our school buildings and play areas.

To appreciate fully the purpose of such units, you must remember that the average spectator knows little about the individual players and even less about the game itself. But as long as there's a microphone on the job, he doesn't have to worry.

While following the game, he is kept informed of exactly what is happening. The names of the players, the type of play being executed and all other essential details are relayed to him clearly and graphically.

Perhaps the most elaborate type of setup is required for stadiums. The ingenuity of the sound engineer is taxed to the utmost to provide intelligible voice reinforcement for the entire field and seating section.

The selection of the unit must be made with care. It must be capable of withstanding all adverse weather conditions, and should be designed with an eye to the size of the audience to be reached, the distance sound is to be projected, the sound source, the outdoor space limita-

tions, and the portability requirements.

In stadiums of any size, that is, with seating capacities of over 4,000, the permanent sound unit gives the most satisfaction and is thus preferred. Gymnasiums, swimming pools and other recreational areas may also be equipped with permanent units. But for these areas there is another type of unit with greater capacity for service—the portable unit.

Portable equipment capable of covering audiences of 50 to 3000 may be obtained in small, medium and large sizes. This type of equipment performs equally well in or out of doors.

There are unlimited uses for portable equipment. In coaching schools, some instructors use it to explain, clearly and without voice strain, the formations and plays of the demonstrators.

Other coaches use it to make suggestions to runners on the track; to transmit instructions and provide music for large outdoor groups engaged in conditioning exercises; track and field meets; play days; and general playground activities.

Indoors, there are many situations where this type of equipment can be put to good use. All activities in the gym and auditorium may be covered with this type of unit.

Music may be provided by attaching a simple record player.

As all types of portable equipment receive abuse while being moved from place to place, care should be exercised, in selecting such equipment, to see that the carrying cases, cables and other component parts are strongly constructed. The equipment should be able to be completely assembled and ready for use in a few minutes; and the controls simple enough to be operated with a minimum of instructions.

Central sound systems

The sound unit making the most progress these days is the central sound system. School administrators have found this unit readily adaptable to a wide variety of educational and administrative functions within the school.

In essence, the unit consists of a central control panel with loud-speaker attachments in every classroom in the building. The central cabinet also houses switches for tuning in radio programs and reproducing recorded material such as phonograph records. By simply pressing a button, the administrator may contact any part of the building.

The primary advantage of the

system lies in the saving of time effected. Routine announcements that were once circulated in writing may now be handled almost exclusively via the sound system. An announcement may thus be distributed throughout the school in a matter of seconds. The class schedule board shows where every teacher is at any given time. It is child's-play to set the correct switches to reach any desired group of classes, or to contact any individual teacher.

Practices in handling announcements differ from school to school. Few schools allow administrative announcements to interrupt the students' work during class periods. Many schools schedule a regular announcement period each day, at which time all announcements are made for the day. Others schedule both a morning and an afternoon announcement period, while still others schedule but one or two such periods a week.

Fire drills

The unit has been used very successfully for fire drills, not only to call such drills but to announce closed exits or other special conditions which might be encountered in case of actual fire or other emergency.

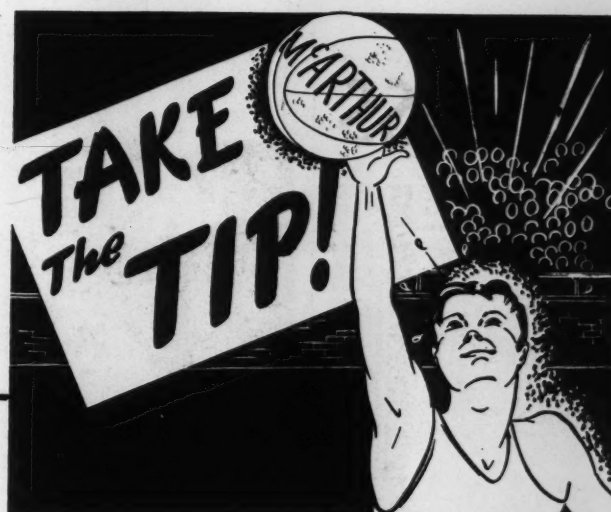
Many administrators have used the unit to advantage in building school spirit through pep talks before forthcoming games, and as a means of organizing student support behind some important change in school policy.

A teacher-student panel may discuss problems in which the students generally are interested.

Most central units feature a number of remote microphones which allow the teacher at the source complete independence in his choice of program material. Such attachments are particularly necessary for the gymnasium and auditorium. Selected recordings may be reproduced in these areas as part of music appreciation courses or as a background for calisthenic drills and folk dancing.

Some schools even provide luncheon concerts in their student cafeterias by playing popular and light classical records. Occasionally at lunch time, but more often in the afternoons and evenings, provisions may be made for social dancing.

Many of the central sound systems incorporate a "talk back," which enables the person operating the central control cabinet to carry on a two-way conversation with any classroom teacher, or to ask questions of any class group.



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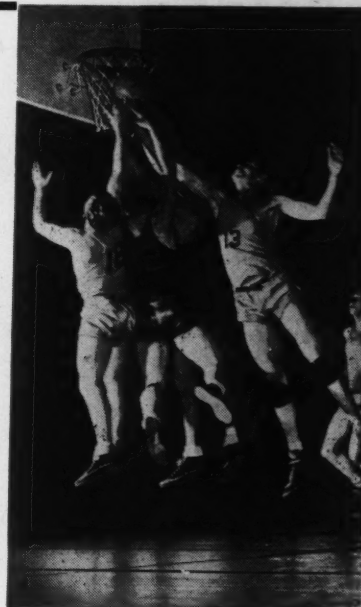
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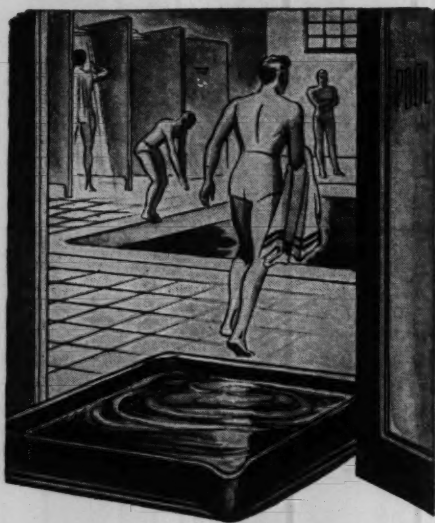


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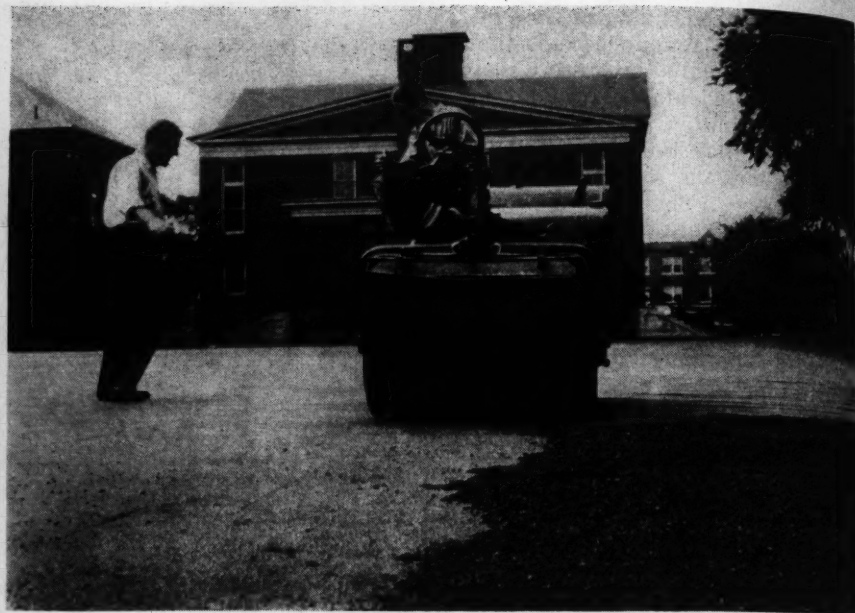
COMPARE THIS PRODUCT BOTH IN COST AND EFFECTIVENESS WITH WHAT YOU ARE NOW USING.

Write for Showersan circular and see for yourself.

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Courtesy Barrett

PLAYGROUND SURFACING

As chairman of the National Association of Public School Business Officials' research committee on playground surfacing, John T. Cate of Glendale, Calif., played a leading role in the fabrication of one of the most comprehensive reports on the subject ever made. The report, from which the material in this article has been taken, is now available for general distribution.*

THE determination of the best surface or combination of surfaces for playgrounds necessitates an understanding of several vital factors.

The type of activity to be conducted must be given first consideration. Turf, for example, may be ideal for many activities, but it is clearly unsuited for activities in which the accurate bound of the ball is essential. Again, for certain types of playground apparatus from which children are likely to fall, special soft or yielding surfaces are needed which would not be suitable for active play.

The location and size of the area naturally has a direct bearing upon the surface to be used. Areas of intensive use require an entirely different surface than those upon which intermittent use may be anticipated.

The extent of the playing season also has a direct bearing upon the surface selected. In most cases it's impossible to maintain turf or natural earth in a satisfactory condition

except during the summer months. In some cases, where special areas are reserved for certain games and which are used only for a brief period, there is less need for special surfaces than where areas are used for many months.

Local tastes, habits and traditions also are a distinct factor in the selection of surfacing. Various cities have experienced considerable difficulty in the initial installation of concrete or asphalt tennis courts, due to the fact that the users were not accustomed to them. After a period of use, they proved more popular than clay or dirt courts. Although popular opinion is naturally a factor to be respected, recreational leaders in general should not hesitate to introduce new methods which have proven their worth.

Another factor of interesting importance is the suitability for flood lighting. There is a growing tendency to extend the use of school playgrounds for public recreation outside of school hours. If the area is to be used at night, such factors should be considered as absorption power of the surface, effect on glare and reflective power.

Varying climatic conditions will certainly influence the choice of surfacing as well as the specifications for the materials used. In hard surfaces, such as concrete or bituminous, a colder climate will generally require a greater thickness, and greater care must be given the subdrainage. Extreme heat affects many bituminous surfaces, necessitating the utilization of different grades of asphalt. The amount

*The report covers the various types of surfaces, their initial costs, annual maintenance costs, the exact method of constructing and laying them down, and recommendations. Copies may be obtained for 50 cents by writing to Mr. Howard W. Cramblet, 341 South Bellefield Ave., Pittsburgh, Pa. Ask for Bulletin No. 7, *Playground Surfacing*.

of rainfall is also a pertinent factor.

The availability of surfacing materials is, of course, a prime consideration. A readily available and inexpensive supply of surfacing materials makes practicable certain types of surface in one part of the country which would be entirely out of the question in another. Each district should make every effort to use local materials if they are satisfactory and available at low cost.

Low labor costs may permit the installation of a better type of surface than would be possible in a city of high labor cost. Since labor costs are a large item in maintenance, it may be economical in the long run, in districts where labor costs are high, to install a more expensive first cost surface which will require less upkeep and maintenance.

The following elements are generally considered important in any good playground surface.

DURABILITY: It must be able to withstand considerable wear without repair or replacement and must have lasting qualities and be firm enough to hold up under sudden and severe shocks.

RESILIENCE: It must have sufficient resilience to eliminate any considerable shock to the players or wear on the area. The longer the playing period, the more important this quality becomes.

NON-ABRASIVENESS: As the users are bound to fall while playing, the surface should be of such texture to reduce abrasions and bruises.

FIRMNESS: A firm surface is generally needed for many types of activities; it is important to provide sure footing and one not easily affected by hard and frequent shocks.

FREEDOM FROM DUST: It must be compact enough to prevent excess dust; it is both unhealthful and unpleasant to play on areas which are dusty when dry.

CLEANLINESS: It should not only be free from dust but should not injure clothing or excessively soil either person or clothing.

SMOOTHNESS: It should be comparatively smooth and free from irregularities and rough spots, it should not become slippery when wet.

GOOD DRAINAGE: It should permit a quick draining of the water in such a way as not to wash out the surface. At the same time, it should not be so porous that it is neither firm nor free from dust.

UTILITY: It should be suitable for for a great variety of uses and un-

(Continued on page 36)

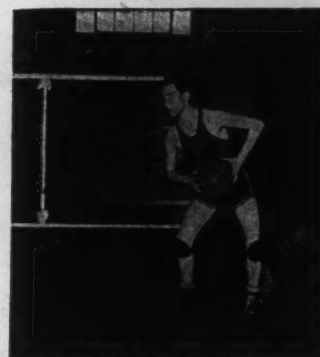


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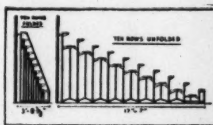
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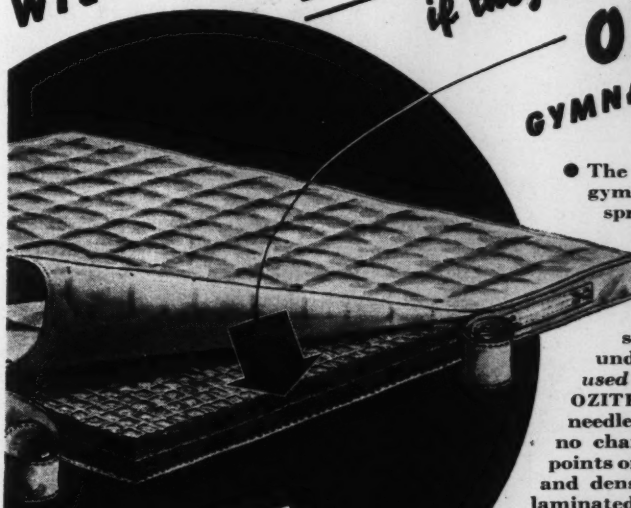
The safety inclined front of Horn Folding Bleachers in stacked position, guards against the ever present danger of a boy or girl running against the wall and suffering serious body or head injury. Vital Zone Protection is just one advantage of the Horn Folding Bleachers. It is the original telescoping bleacher employing the folding arm principle. It is stronger, safer, works easier.

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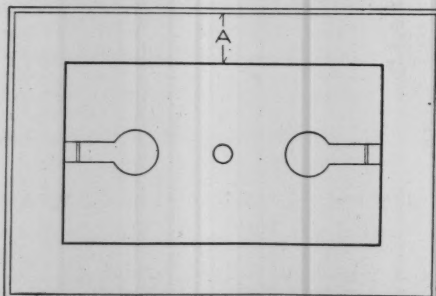
For Gyms having entrances in the side walls, our XL miter-corner sections offer a further space saving. These sections fill in otherwise wasted space. For example, an eight row corner section provides 84 additional seats. For full details see our bulletins. We also make telescoping, roll type stands.



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Lengths of spaces available for seats.....
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FANNING THE BACKBOARD

By H. V. Porter, Secretary Basketball Rules Committee

A FRIEND of the writer has a watch that has come down to him as an heirloom. It's almost as big as a mule shoe and as heavy as a small cow bell. The case is of armor-plate thickness.

The watch makes a good ornament for a den, but it is hardly practical as a pocket timepiece. It lost its utility when the form-fitting vest replaced the homespun and when metallurgical experts developed lightweight alloys and precision machinery to prove that the best goods sometimes come in small packages. Of course, grandfather still maintains the watch is superior to the new pint-sized gadgets. But laboratory facts do not support his claim.

The determination of the National Basketball Committee to keep pace with modern developments parallels the story of the watch. The official fan-shaped backboard, with only 43 per cent of the surface of the old board, marks as great a forward step as the thinner and lighter timepiece. Both have the advantage over their predecessors in the way of convenience and utility.

For one thing, the new bank, together with the four-foot end area, eliminates congestion around the basket; and, by giving the players more room to maneuver, opens the way for new strategies and skills. With no jutting corners, the bank offers the players new shooting angles from the corners. It also affords increased visibility from the end seats, through elimination of superfluous areas above and below the board.

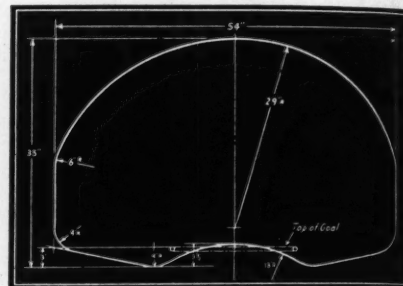
When you remember that the new boards are also cheaper, sturdier and easier to operate, you wonder how any opposition can be offered to them. What is there so precious about the traditional bank that it can't be replaced with something better?

All of us tend to "like what we've got." But where would we be if we clung to tradition? We'd still be using the foot-pedal gear shift, gas light and the old-fashioned night-shirt.

The standard board is now being used in sufficient numbers to prove their purported worth. A conservative estimate of the number in actual use is 25,000. There are also many home-made models which approach the standard board in size and shape.

The board will be used in the state final tournaments of Connecticut, Illinois, Iowa, Kansas, Minnesota, Missouri, Nebraska, Oklahoma, Oregon, South Dakota, Utah, and Wyoming; and in part in Alabama, Colorado, Georgia, Idaho, Kentucky, Michigan, Montana, New Mexico, Ohio, Pennsylvania, Tennessee, and West Virginia. It is widely used in the colleges of the southwest and Rocky Mountain states and to a lesser extent by other college groups.

Army and Navy equipment orders for camps and armories specify the smaller boards. A carload was recently sent to Iceland for the serv-



OFFICIAL BACKBOARD: Old, bulky, 6 by 4 feet square-jawed banks are being replaced by these newly legalized 54 by 34 inch fan-shaped boards.

ice men stationed there. The required shipping space and weight was less than half of that which would otherwise have been necessary.

Probably the first widespread use of smaller backboards was on outdoor courts in the South. Traveling through the South today, one is impressed with the great number of four and a half by three foot boards.

There are other reasons than those already enumerated for the popularity of these boards. For outdoor use, the additional space on the large board is detrimental. Besides being superfluous, it is subject to warping and twisting. It catches too much wind and is so heavy that two posts are required for support, thus adding an injury hazard on run-under shots.

The smaller size eliminates these undesirable features without detracting from utility. It's another case of necessity being the mother of invention.

It would be ideal if there could be an immediate 100 percent transition to the new bank. But this is impossible, as it would work too

many hardships. Such change requires a transitional period of several years. The rules authorities aren't forcing any organization to change boards under circumstances that would prove a hardship. The larger banks will probably still be considered legal for several years.

Needless to say, all new buildings should be equipped with the smaller backboard and whenever it is necessary to replace boards or add new ones, the smaller board should get the call. There are very few organizations that cannot find use for an extra pair of backboards. The old boards can still be put to good use on crosscourts and other practice areas.

In a few sections, there has been a disposition to criticize any action of the rules committee which allows for options. These criticisms have no reasonable foundation. The universal use of the four-foot end space, the smaller backboard, the molded ball and similar progressive changes could never be realized, without extreme hardship, if everyone were compelled to make the change immediately.

At present, only about 50 percent of our basketball courts have taken advantage of the four-foot end line; while a few of the southern states and some of the college groups have not yet elected to reap the benefits of the molded ball. But definite progress is being made in the right direction. From now on, it's just a question of time before these worthwhile innovations are universally accepted.

Wins friends

The smaller backboard has won friends wherever it has been installed. Typical of its reception is this statement by the athletic director of one of last year's state championship teams: "I was skeptical of the value of the smaller backboard when we first encountered it last year. This fall we equipped our gymnasium with them and now we wonder how we ever got along without them. We wouldn't go back to the old type for anything."

It's unreasonable to expect everyone to see eye to eye on the smaller board. There has never been universal agreement on any major change in the code. There were men who frowned when: the size of the ball was changed from 31½ to 29½ inches; the end line was moved behind the backboard; the contact blocking rule was adopted; the center jump after a goal was eliminated; and when the molded ball was legalized.

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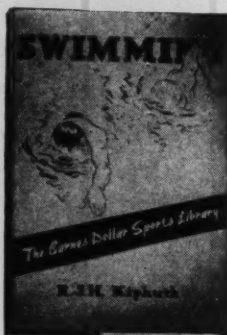
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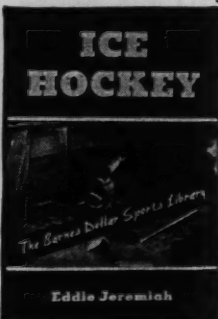
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Playground Surfacing

(Continued from page 33)

der varying weather conditions. It should also be such that it may be suitable for play with either rubber soles or ordinary street shoes.

GOOD APPEARANCE: By presenting a neat appearance, it should facilitate play. Glaring surfaces should be avoided at all costs because of the resultant eye strain.

The available surfaces, in addition to natural earth, are generally classified under these headings: turf, sand-clay, crushed stone, bituminous surfaces, concrete, and special patented materials.

The table that follows evaluates the attributes of these surfaces, based upon the components of an ideal surface.

	Ideal	Earth	Turf	Sand-Clay	Crushed Rock	Bituminous	Concrete
First Cost—Cheapness	1	1	4	2	3	5	6
Maintenance—Cheapness	1	4	6	3	5	2	1
Durability	1	5	6	3	4	2	1
Resilience	1	2	1	4	5	3	6
Non-Abrasiveness	1	3	1	4	6	2	5
Firmness	1	4	5	3	6	2	1
Freedom from Dust	1	6	3	5	4	1	2
Cleanliness	1	6	3	4	5	2	1
Smoothness	1	5	3	4	6	1	2
Good Drainage	1	6	4	5	3	2	1
Utility	1	4	2	3	6	1	5
Good Appearance	1	6	1	4	5	2	3
Acceptability	1	4	1	3	6	2	5
	13	56	40	47	64	27	39

Turf

Turf is generally conceded to be the ideal surface for most forms of children's play as well as many highly organized games for youths and adults. However, its use is not practical on intensively used playgrounds of less than two or three acres, as it is almost impossible to maintain it without periods of rest for the recovery of the turf.

Its use is also dependent to a large extent on climatic conditions. For instance, in parts of Minnesota it is very easy to grow grass, while in California the expense of maintaining turf areas is so great as to almost eliminate its use.

The disadvantages are due mainly to the fact that it is not suitable for play when the grass is wet as it becomes entirely too slippery, and is very easily damaged. It cannot be used when the ground is thawing without harming the turf. Many games which require an accurate bound of a ball or a sure smooth footing may better be played on other types of surfacing.

A cost of approximately \$10 per thousand square feet may be anticipated for turfing. It is normally necessary to renovate, fertilize and

re-seed the turf in the spring of each year. The approximate annual cost of this work and the necessary mowing and rolling may be anticipated at from \$4 to \$5 per thousand square feet.

Sand-clay surfaces

The use of a combination sand-clay surfacing is reported by more cities than any other type of surfacing. Many of these soil surfaces are apparently giving a high degree of satisfaction during most of the year, although a great majority of them cannot be used to any large extent during wet weather or when the frost is leaving the ground.

As a general rule most communities make use of local materials which are readily available at a nominal cost. Several of the larger school districts are using a clay-sand-gravel combination, the success of which depends largely on the texture of the clay utilized. Clay with a 30 percent sand content apparently is producing the best results.

Other cities are using ordinary loam which is plowed into the ground, rolled and sometimes treated with calcium chloride. California uses decomposed granite. Although this material has sufficient clay to hold the sand and dries rapidly after rain, in common with other materials of this type it will generally show ruts after rain and naturally cannot be used for play purposes until thoroughly dry. For best results, it must be dragged or rolled after each rain.

The cost of sand-clay surfacing naturally varies with the locality. Assuming material cost to be from 80 cents to a dollar per ton, delivered, the work will probably cost from \$20 to \$25 per thousand square feet.

Maintenance should begin as soon as the playground is opened. After

rain, all ruts must be filled and tamped. It must also be dragged and rolled at periodic intervals. At approximate three-year intervals, additional surfacing material should be sprinkled over the entire playground, wetted down and rolled. The average annual maintenance cost should be from \$8 to \$10 per thousand square feet.

Crushed stone surfaces

Various types of crushed stone surfacings are apparently in wide use, although open to criticism. Playgrounds are sometimes covered with a layer of coarse, sharp stone which provides a loose surface on which it is difficult to play active games and which cuts and bruises children who fall on it. The use of hard crushed stone as a top surface should be absolutely avoided.

A number of cities are getting good results with the use of limestone screenings. Where sufficient fine screenings are provided, they have the advantage of good binding qualities. The screenings form a compact surface. As they are very porous, the playground may be used almost immediately after a rain.

A cost slightly higher than sand-clay or decomposed granite surfacings may be anticipated, although the city of Louisville reports a cost of \$12 per thousand square feet.

The surface may suffer some loss of binder in which case it will be necessary to renew the binder as fast as it is swept off. Chuck holes and ruts will appear. These must be filled to maintain the smooth surface. The work of maintenance should begin as soon as the playground is put into operation. At approximate three-year intervals, sprinkle additional binder material over the playground and then roll. Average maintenance cost should be from \$8 to \$10 per thousand square feet.

Bituminous surfaces

During the past few years, the use of various types of bituminous surfaces has grown rapidly and indications point to even greater use in the future.

There are three types of bituminous surfaces; hot asphaltic concrete, cold asphaltic concrete and rock-asphalt. The hot asphaltic concrete surface consists of crushed rock, sand, filler and asphaltic cement. The ingredients are mixed and heated, and then spread and rolled until the surface is unyielding, smooth and even.

(Continued on following page)

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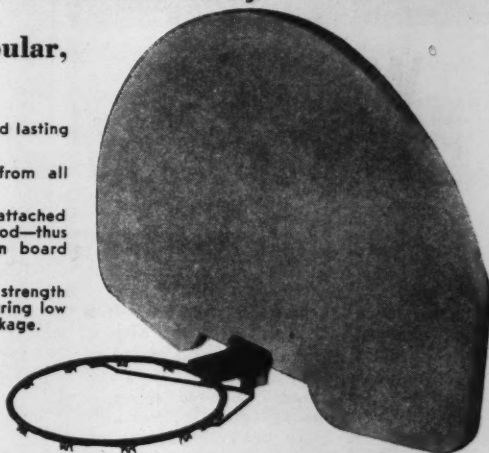
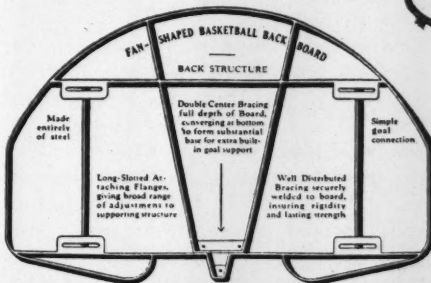
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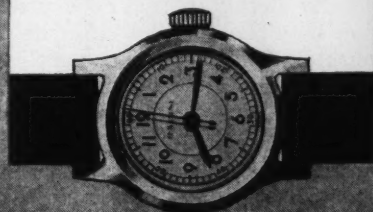


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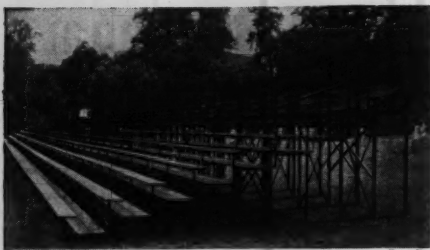
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The rock and asphalt bituminous surface consists of crushed rock penetrated and bound together with emulsified asphalt.

These materials are particularly adaptable for use on small intensively used playgrounds and for all special game courts such as tennis, handball, volleyball, etc. A bituminous surface can be used throughout the entire year; it can be used immediately after rain; the expense of maintaining it is negligible; repairs to cracks or depressions may be readily made; and the surface can be played upon with any kind of shoes.

The cost of bituminous surfacing depends largely upon local conditions and shipping rates. Under present conditions, a cost of from \$30 to \$40 per thousand square feet may be anticipated. Continuous repair methods are essential to keep the surface in a satisfactory condition. In general, the maintenance will consist of sealing cracks and patching. The average annual maintenance cost may be anticipated from \$1 to \$2 per thousand square feet.

Concrete surfaces

It is generally agreed that a concrete surface is not satisfactory for general playground purposes because the surface is too hard, lacks resiliency and is likely to prove harmful to the feet and ankles. However, it is being increasingly used as a surface for special court games such as tennis and handball. The effect of the hard surface may be eliminated through the wearing of thick-soled rubber shoes.

The cost of this type of surfacing varies considerably due to local variation in cost of aggregates, size of areas to be surfaced, local labor conditions, and types of available equipment.

In addition to the cost of grading, Portland Cement Surfacing will cost between \$125 to \$175 per thousand square feet. Considerable difficulty exists in making repairs, the main difficulty being to secure a proper union between the new and the old concrete. The most successful repairs are made by cutting out the area to be repaired and then filling the hole with bituminous concrete.

In general the maintenance will consist of sealing cracks and patching. The average annual maintenance

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nance should run from 50 cents to \$2.50 per thousand square feet.

Soil stabilization

The use of a stabilizing agent such as asphaltic emulsion has met with great success in some districts. Tremendous strides are being made in this direction. It may yet prove a solution to most of our playground problems.

The ground surface is first broken up and then mixed with asphaltic emulsion stabilizer in the presence of sufficient water to thoroughly dampen and soften the soil. After a prescribed period of drying, the stabilized ground surface is surfaced with a seal coat or wearing surface. The finished thickness of surface is usually about two inches.

Walter L. Scott, director of municipal and school recreation in Long Beach, Calif., reports that soil stabilization has proven completely successful in contending with the mud, dust and dirt situation in his part of the state. Play areas have been developed suitable for many kinds of activities.

The surface obtained has certain definite advantages, one of the most important of which is increased resiliency. The asphalt surfacing is easy and reasonable to maintain and the problem of erosion is eliminated. The ground never freezes and buckles. The material can thus be laid only one inch thick, assuring cheaper construction costs.

This surfacing provides good footing. There is no unevenness and no hazardous holes. It drains rapidly and dries soon after rain, leaving no mud.

No claim is made that this kind of surfacing is non-abrasive. However, it seems to become less abrasive after heavy use. The paved surface is not recommended for games in which spikes or cleats are used or where there is base sliding. The cost of stabilization, while dependent upon soil conditions, will be between \$20 and \$30 per thousand square feet.

Calcium chloride

The use of calcium chloride for dust-laying is becoming more and more a standard procedure in schools whose playgrounds and sports fields are plagued with this unwholesome nuisance.

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(Concluded on following page)

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(Numbers in parentheses denote page on which advertisement may be found)

**ON PAGE 40 OPPOSITE THIS SPACE ARE
OTHER LISTINGS AND FORM FOR SIGNATURE**

Federation News

(Continued from page 19)

They range from five days to 30. This is another case where time limits have probably been set arbitrarily without any particular study of the problem.

A discussion of state-wide machinery for communications and contacts was led by Troy Walker and D. R. Mitchell. The former outlined several ways to improve upon mimeographed and other non-printed state bulletins.

Oregon, for example, issues an attractive mimeographed bulletin at regular intervals. Recently, they've found it possible to use illustrative plates by having a printer make the plate impressions. Since no typeset-

ting is involved and since several sheets can be run at the same time, the work can be done inexpensively.

Comments by various members of the group indicate that a spirit of unity can be promoted on a state-wide scale only when there is some means of regular communication, such as that provided by a bulletin issued at regular intervals and containing material dealing with the activities of the legislative and executive bodies of the high school groups.

Track book

The first issue of the National Federation edition of the track and field guide will be ready for distribution next month. It will contain the official rules, and articles

and statistics related to the sport as provided in the high school program.

Sentiment is gathering for a substitute event for the javelin for boys with great strength and ordinary speed. A number of such events have been proposed but only one has any great possibilities; that is, a weight which can be tossed with an underhand motion.

Both Georgia and Mississippi will use the interscholastic football code in 1942 for the first time; both will be represented at the national committee meeting in Chicago on January 8-10.

Playground Surfacing

(Continued from page 39)

subjected to heavy going or unusually dry seasons will probably need two treatments.

For best results, spread the chloride after a rain. Moisture is then present to help dissolve the flakes. The same purpose can be accomplished by thoroughly sprinkling the surface before spreading. For the same reason it is better to spread the chloride flakes in the late afternoon. They will dissolve more readily in moist evening air.

Calcium chloride treatments give the surface a neater, better-groomed appearance. It makes the surface dustless, compact and darker in hue, thus eliminating glare.

Recommendations

It would appear that on intensively used playgrounds, that is, playgrounds with a small area per student using them, the use of bituminous surfaces will probably be the best solution. On large playgrounds where areas may be set off for various games, combinations of surfaces would appear to be the most desirable.

It is generally possible to engineer the layout so that most of it can be surfaced with bituminous and the balance in turf, natural earth or other type of surfacing. The bituminous portion should be of sufficient size to accommodate all normal court activities, thus allowing a concentration of activities in case of wet weather.

MASTER COUPON

(See page 39 for other listings)

(Numbers in parentheses denote page on which advertisement may be found)

McGraw-Hill (37)

- ☐ Sports Booklist

FRED MEDART (35)

- ☐ Playground Equipment
☐ New Fan-Shape Backboard & Goal
☐ Telescopic Gym Seats
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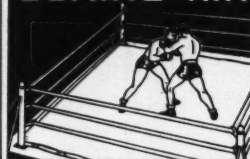
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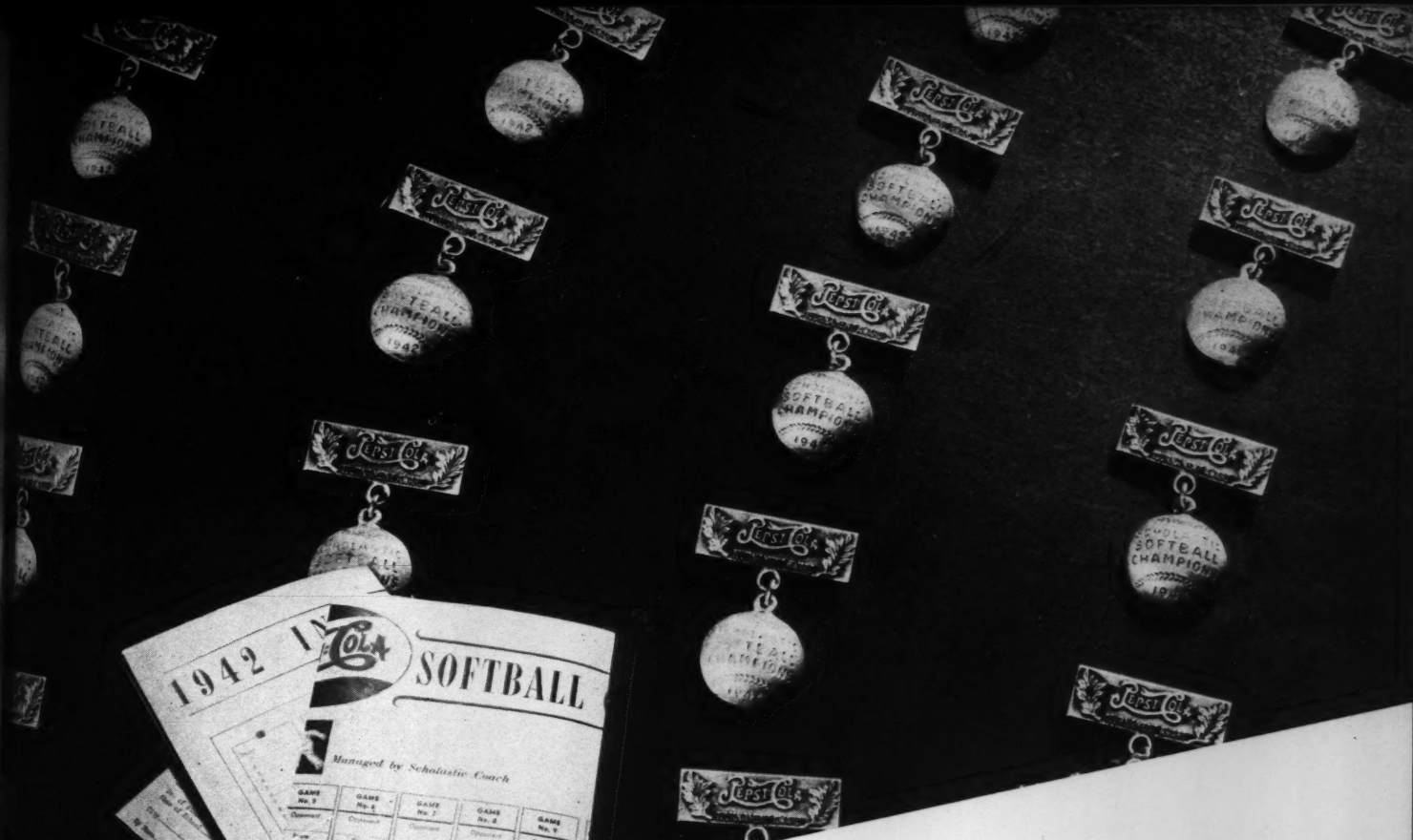
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